

THE
WONDERS
OF
NATURE and ART;
BEING AN
ACCOUNT
OF

Whatever is most Curious and Remarkable
throughout the WORLD;

Whether relating to its

ANIMALS, VEGETABLES, MINERALS,
VOLCANO'S, CATARACTS, HOT and COLD
SPRINGS,

And other Parts of NATURAL HISTORY;

Or to the

BUILDINGS, MANUFACTURES, INVENTIONS,
and DISCOVERIES of its Inhabitants.

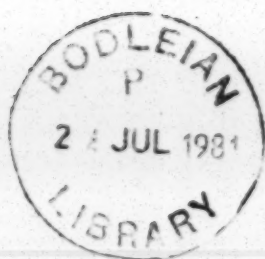
The Whole collected from the Writings of the best
HISTORIANS, TRAVELLERS, GEOGRAPHERS, and
PHILOSOPHERS, among which are some *Original*
Manuscripts; interspersed with pious OBSERVATIONS
and REFLECTIONS; illustrated with NOTES, and
adorn'd with COPPER-PLATES.

VOL. II.

READING,

Printed, and sold by C. CORBETT, at *Addison's Head*
opposite St. *Dunstan's* Church in *Fleetstreet*, London; and
C. MICKLEWRIGHT and COMP. in *Reading*; and by
most Bookfellers and Country Printers in *Great-Britain*.

MDCCL.



T H E
W O N D E R S
O F
N A T U R E and A R T, &c.

C H A P. VI.

Of the Seven UNITED PROVINCES.

THE *United Provinces*, formerly comprehended under the Name of *Holland*, the most considerable of the Seven Provinces which form one powerful Republick, were anciently reckon'd a Part of *Germany*, and therefore seem naturally to follow the Account we have given of that Country. These Provinces are so low and flat, that they are in continual Danger of being overflow'd by the Ocean, with which they are bounded on the North and West; but the In-

Vol. II. N^o. XIV. B habitants

habitants have guarded against the Irruptions of that furious Element by surprizing Banks or Dikes, the keeping of which in Repair is attended with a vast Expence, and annually employs more Men (as Sir *William Temple* was inform'd) than all the Corn of the Province of *Holland* could maintain. They have also made and support with wonderful Care and Industry a great Number of Canals, which serve to drain off and receive the Waters that would otherwise drown their Lands; and thus the Soil, though naturally wet and marshy, is made to yield most excellent Pasturage, and some Corn, but especially the former, whereby they feed vast Herds of Cattle, and are furnish'd with Plenty of Butter and Cheese, almost the only Product of the maritime Parts of the Country.

NOR is this the only Advantage the *Hollanders* derive from their Canals, but an easy Communication is thereby open'd for the Conveyance of Goods and Passengers from one City and Town to another. Their Way of travelling in *Treckschuyts*, or cover'd Boats drawn by Horses, is exceeding cheap and convenient; for the Fare is not above a Penny a Mile, and in these Vessels a Man may read, write, sleep, eat, or divert himself without Interruption, and without that Fatigue and Inconvenience which in a Land-Journey are almost inevitable. In the Winter, when the Canals are cover'd with Ice, a Farmer's Wife, with a Basket of Butter and Eggs upon her Head,
and

and her Skates upon her Feet, will skim away to Market ten or a dozen Miles, sell her Provisions, and in a few Hours be at home again with her Family. Neither does the Ice prevent the Carriage of more weighty Burdens, for their Canals are often loaded with Carts and Sledges, the same Element thus alternately serving them in the Capacity of Land and Water.

Sir *Willia. Temple* observes, that *Holland* is generally flat, and looks as if after a long Contention between Land and Water which it should belong to, it had at last been divided between them; for to consider the great Rivers and surprizing Number of Canals that are found in this Province, which not only lead to every great Town, but almost to every Village and Farm-House in the Country, and the Infinity of Sails that are seen moving upon them, one would imagine the Water to have shared with the Land, and the People who live in Boats to hold some Proportion with those who live in Houses. These Conveniencies are owing to the Nature of the Situation, and to that Level and Softness of Soil, which makes the cutting of Canals in *Holland* so easy a Work, as to be attempted by almost every private Person.

THIS short Account may give the Reader a general Idea of the Soil of the *United Provinces*, whereof the greatest Part is low and marshy, except those of *Utrecht* and *Guelderland*, which enjoy a higher Situation. As to their Minerals

or Fossils, we know of none so remarkable as to deserve particular Notice; nor do their Vegetable Productions afford us any thing that requires a Description. There are some Animals however, which, though not peculiar to these Provinces, will fall no where more properly under Consideration; and therefore we shall proceed to that Branch of Natural History.

ANIMALS.

STORKS, which are Birds that delight in watry and fenny Countries, are very common in *Holland*, where they build their Nests on the Tops of Houses, and feed on Frogs, and several Kinds of useless or pernicious Reptiles. On account of this Service great Regard is paid to them by the Inhabitants, who never wilfully hurt or molest them; and some say, that to kill a Stork is a capital Offence by the Laws of the Country*. This Bird is larger

* The Stork is likewise much esteem'd and revered by the present *Mahometans* in *Egypt*, as the *Ibis* was by the ancient *Egyptians*: But Dr. *Sharr* supposes, that the Regard paid to these Birds might originally proceed, not so much from the Service they are of to a moist and fenny Country, in clear-

ing it of a Variety of useless Reptiles and Insects, as from the solemn Gesticulations they are observ'd to make as often as they rest upon the Ground or return to their Nests; for they first throw their Heads backwards, then make a Noise by striking the upper and lower Part of their Bill together.

than the Heron, like which it has a long reddish Bill, but its Neck is thicker and shorter. The Head, Neck, Breast, and Tail are white, but the Rump and Outside of the Wings are black; and its Claws are broad, almost like the Nails of a Man.—Many Stories are related of the wonderful Tenderness and Affection the old Storks bear to their Young, of which the following Instance is sufficient*. At *Delft*, in the 1636, a Fire broke out in a House that had a Stork's Nest upon it, with young ones which could not then fly. The old Stork returning with some Meat to her Young, and seeing the Danger they were in, (the Fire having almost reach'd the Nest) made several Attempts to save them; but finding all in vain, she at last spread her Wings over them, and suffer'd her-

ther, and afterwards prostrate their Necks as it were in a suppliant Manner, always repeating the same Motions three or four times.—See *Shaw's Travels*, p. 428.

* The *Storgè*, or natural Affection which all or most Animals have for their Young, is an admirable Principle (as *Dr. Derham* observes) implanted in them by the wise Creator; whereof we have Instances continually before our Eyes. The Returns of Tenderness made

by the Young to the Parent-Animals, when grown old, are also very remarkable. *Olaus Magnus* observes of the Crane, that when the Parents through Age are stripp'd of their Feathers, the Offspring cherish them under their Wings, and provide them Food. *Pliny* has a Remark to the same Purpose; and he likewise tells us, that Rats nourish their aged Parents with extraordinary Affection.

self to be consumed in the Flames with her Offspring.

THE Stork is what we call a *Bird of Passage*; leaving *Holland* on the Approach of Winter, and returning again in the Spring, like Swallows, Martins, and several other Birds, the Time of whose Departure we are pretty well acquainted with, but to what Countries or Places they retire, is a Question about which the most curious Enquirers into Nature are very much divided*. The vulgar Notion of their flying

* Perhaps the Reader will not be displeased if we enlarge a little on this curious Article of Natural History, and give him the Sentiments and Observations of the most eminent Writers on the Subject. *Olaus Magnus* is of Opinion, that in the Winter Swallows hide themselves in Holes or under Water, and says it is a common Thing in the Northern Countries for the Fishermen to draw them up in Clusters, hanging together Head to Head, Feet to Feet, &c. He adds, that such a Cluster being accidentally carried by some Boys into a Stove, the Swallows, after thawing, began to fly about, but weakly, and for a very little Time.

To the same Purpose *Et-muller* relates, that he himself had found above a Bushel of Swallows under the Ice in a Fish-poud, all dead to Appearance, but the Hearts still retaining their Pulsation. These Accounts are confirm'd by Dr. *Colas*, who inform'd the Royal Society, that he had seen sixteen Swallows drawn from under the Ice by Fishermen's Nets out of the Lake of *Samodt*, and about thirty out of a great Fish-pond; that he also saw two Swallows just come out of the Water, which could scarce stand, being very wet and weak, with their Wings hanging on the Ground; and that he had often ob-

to the Moon is too extravagant to require any Confutation; and it is equally unreasonable and unphilosophical to suppose (as a late Writer has done) that they soar above the Atmosphere in their Passage to distant Countries: For Birds would quickly die if remov'd beyond the Mass of Air that surrounds the Earth, for want of that Pressure which is the Spring of internal Motion in the animal Machine; as is demonstrable from Reason, and from Experiments on Animals in the exhausted Receiver. Upon the

served these Birds to be weak for some Days after their Appearance. Notwithstanding all these Testimonies, several ingenious Naturalists are of quite different Sentiments, and particularly Mr. *Willughby*, who thinks that Swallows in Winter retire to *Egypt* and *Ethiopia*; and perhaps the Stork retreats to the same Countries. This Conjecture seems the more probable when we consider, that at the Time these Birds leave us the Inundation of the *Nile* is over, the Waters are daily subsiding, and the Marshes abound with aquatic Animals, the proper Food of the Stork; and it is well known that stagnating Waters produce Flies of various Spe-

cies, which are suitable Food to the Swallow and Martin. During our Winter therefore we may suppose them to stay in those Countries, where every thing at that Time is in its Bloom and Beauty, till the scorching Heats induce them to seek a milder Climate, and fly from *Africa* to *Europe*.—But to clear up this Matter as far as possible, let us hear what Mr. *Catesby* advances on the Migration of Birds, who seems to have treated the Subject (in *Phil. Trans.* N^o 483) with a great deal of Judgment. The Reports of those we call *Birds of Passage* lying torpid in Caverns and hollow Trees, or at the Bottom of deep Wa-

Whole

Whole it is most probable, (not to say beyond Dispute) that these Birds remove alternately from one Country to another at certain Seasons of the Year, taking long Flights over Sea and Land, in order to enjoy an agreeable Temperature of Air, and a proper Supply of Food. These seem to be the great Motives (especially the latter) of this regular Migration: But how such unthinking Animals should exactly know the best Time for undertaking their Journeys, and also whither to go, and how to steer their

ters, this Gentleman thinks are ill-attested and absurd; but how he can set aside the ocular Testimonies above-mention'd, we leave him to consider. He agrees in the general Opinion, that these Birds fly into other Countries, with this additional Conjecture, that the Places they retire to lie in the same Latitude in the Southern Hemisphere, as those from whence they depart, where the Seasons reverting, they enjoy the like Temperature of Air: But this we think is absolutely impossible, the Distance being generally too great; nor is there any Necessity for such a long Passage, since the Countries on this Side the Line may answer

the same Purpose. As to the Manner of their travelling, it is probable that Swallows, Martins, and other Birds, whose Wings by their Length and continual Exercise are fitted for long Flights, can stretch over wide Seas, and perform their Journey much sooner than those with short Wings, such as the Redstart, Nightingale, &c. These Birds we suppose (with another Writer on this Subject) fly from Hedge to Hedge, and from Field to Field, feeding as they go, till they come to the nearest Sea-Coast; and if they have Strength to fly over, they can then easily make their Way to the Southern Parts of *Europe*. And perhaps (as

Course,

Course, is really amazing to consider. Who acquaints their Young, that it will soon be necessary for them to forsake the Land of their Nativity, and travel into a strange Country? Why do those who are detain'd in a Cage express so much Uneasiness at the Season for the usual Departure, and seem afflicted at their Inability to join the Company? Who is it that assembles a Council to fix the Day of their Removal, or sounds a Trumpet to inform the Tribe of the Resolution taken, that each Individual may be prepared? Who teaches them

Mr. *Catfish* observes) the same Sagacity that instructs them to change Climates, may direct them to the narrowest Part of our Channel, to avoid the Danger of passing a wide Sea; though indeed some of these short-wing'd Birds are capable of longer Flights than we are apt to imagine, for *Belonius* relates, that he has seen Quails, which by their Structure seem little adapted for such Journeys, passing and repassing the *Mediterranean* in great Numbers, at the Seasons when they leave us and visit us again.

As to Winter Birds of Passage, *viz.* the Fieldfare, Red-wing, Woodcock, and

Snipe, they retire from us to the Northern Parts of the Continent, where they breed and remain during the Summer, and at the Return of Winter are driven Southerly in Search of Food, of which they are deprived by the Ice and Snow in those frigid Regions. The Woodcock and Snipe Mr. *Catfish* has frequently known to continue here the Summer and breed, so that he reckons the Fieldfare and Red-wing the only Birds of Passage that constantly and unanimously leave us at the Approach of Summer; which indeed is very unaccountable, there being no apparent Necessity for their Departure,

to observe such wonderful Order and Discipline, that not one sets out till the Day appointed, nor a Deserter lags behind? Have they Charts to regulate their Voyage, or a Compass to guide them infallibly to the Coast they aim at, without being disconcerted by Rains, Winds, or the Darknes of the Nights? Are they acquainted with the Places where they may rest and be accommodated with Refreshments? And what Reason informs them, that this or that particular Country will yield them more convenient Food and Habitation than another; that *Egypt*

either on the Score of Food or Climate. The Place of their Retirement is *Sweden*, and other Countries in that Latitude; but as they would find them too cold and destitute of Provisions, were they to hasten thither directly when they depart from hence, they journey gradually through the more moderate Countries of *Germany* and *Poland*, and arrive not at those Northern Regions till the Severity of the Cold is abated, and proper Food may be found for their Subsistence. — The Coming of these Birds to us may then be pretty well accounted for, being directed from the North to our milder Climate

for their Winter Support, by an innate Principle of Self-Preservation; but the Cause of their Departure in the Spring, when one would imagine they should couple and build their Nests, is yet a Secret in Nature: For if it be suggested, that they do not leave us till the Haws and other Berries are all gone; and they are under a Necessity to seek for Food elsewhere, this will have little Weight, unless it can be shewn that the Northern Countries afford them a fresh Supply; which we are almost certain they cannot do. As therefore the Food of these Birds in Summer is undoubtedly of a different Kind

(for

(for Instance) will afford them better Accommodations than *France*, or *Spain*, or any of the intermediate Countries over which they direct their Flight?—The Truth is, they have neither Charts, nor Compass, nor Reason, but in all this they are guided by that powerful Instinct impressed by the Creator, whereby *the Stork in the Heaven knoweth her appointed Times, and the Turtle, and the Crane, and the Swallow observe the Time of their Coming.* Jer. viii. 7.

TOWARDS the Mouth of the River *Maese*, and in the *Leck*, the *Wabal*, and other Branches of the *Rhine*, there is annually found an extraordinary Sort of Insect, call'd an *Ephemeron*,*

from what they eat in Winter, one would think they might find Subsistence here in greater Plenty, and much sooner, than in the colder Countries to which they remove.—In short, (says Mr. *Catesby*) all we know of the Matter ends in this Observation, That Providence has created a great Variety of Birds and other Animals, with Constitutions and Inclinations adapted to the different Degrees of Heat and Cold in the several Climates of the World, and has given them Appetites for the Productions of those Countries whose Temperature is suited

to their Nature, as well as Knowledge and Abilities to find them out. From whence we may infer, that the Birds we have been speaking of could no more subsist in the sultry Climes of the *Molucca* Isles, than Birds of Paradise could in the frigid Regions of *Sweden* or *Lapland*.

* *Aristotle* gives the first Account of this Animal, which has also been taken notice of by *Aldrovandus*, *Johnston*, and *Clusius*; but more particularly by *Swammerdam*, in an express Treatise upon it, which Dr. *Tyson* has translated.

remarkable

remarkable for the Shortness of its Life, which the Name implies. It is a Kind of Fly, having four Wings, six Legs, and two strait hairy Tails. Midsummer is the usual Time of its Appearance, and it lives only five or six Hours, being born about six in the Evening, and dying about Eleven at Night; but it must be observed, that before it assumes the Figure of a Fly, it lives three Years under that of a Worm, in a Cell or Case of Clay. It begins its Change or Metamorphosis by shedding its Coat, which being done, and the little Animal thereby render'd light and nimble, it spends the few Hours of its Life in frisking over the Waters; on which the Female drops her Eggs, and the Male his Sperm on them, whereby they are impregnated. These Eggs descend to the Bottom by their own Gravity, and are hatched by the Warmth of the Sun into little Worms, which make themselves Cases in the Clay, and feed on the same till the Time of their Metamorphosis. To dig their Cells the Wisdom of the Creator has furnish'd them with proper Members, their fore Legs being form'd somewhat like those of a Mole, and their toothy Cheeks (resembling the Claws of Lobsters) serving them more readily to bore the Clay. These Worms are of different Sizes, from one Inch to three, according to their Age; and are all distinguish'd into fourteen annular Divisions or Rings, the first of which contains the Head, the three following the Breast, and the other

ten

on the Belly and Tail. As to their Colour, the smallest are blueish, somewhat inclining to grey; their Eyes are brown, but grow black by Age; and in time the whole Worm becomes of a pale Yellow. Having continued in this State about three Years, they are transform'd into wing'd Animals, leave their Cells, and rising out of the Water in the Summer-Evenings they skim and play about its Surface, lay their Eggs, and die in a few Hours, as above related. During, its short Life the Ephemeron eats nothing, nor is it furnish'd with Parts necessary for the Reception and Concoction of Food; so that the Business of generating and multiplying its Kind seems to be the sole End of its Transformation.

HERE it may not be amiss to give a Description of those destructive Reptiles call'd *Pipe-Worms*, which are sometimes bred in vast Numbers on the Coast of *Holland*, and by gnawing their Way into the Pile-Works of the Dikes, where they take up their Lodgings and feed upon the Wood, have more than once alarm'd the Republick with terrible Apprehensions, lest those Fences should be destroy'd, which defend their Country from the Fury of the Ocean. In the Year 1731 the Persons appointed to inspect into the State of the Dikes caused a Pile that had been driven down in the Sea in 1718 to be drawn up, which appear'd sound on the Outside, but being split in two was found gnaw'd through and through by the Worms that were

lodged in it, some of which were above a Foot long, though they seldom exceed seven or eight Inches. Another Pile, almost new, being taken up and split, was found full of little Holes from End to End, about the Diameter of the Shaft of a Tobacco-Pipe.

THE Head of this Sea-Worm is cover'd with a Sort of Helmet, consisting of two separate Shells, one on the Right Side, the other on the Left, with the Points of which it penetrates or bores the Wood, the Dust or Powder whereof is the Food of the Animal. The Fore-part or Body of the Worm is of a whitish Substance, resembling an Oyster both in Taste and Colour, but is not near so firm, being so extremely soft and tender, that it can hardly be touch'd without breaking. The Hind-part is of a firmer Texture, and of a greyish Colour, terminated with a Binding or annular Protuberance of a sinewy Substance; from whence proceed two Appendages like Claws, which are as hard as the Helmet, and smooth and white as Ivory. Between these are two little Tails, one strait, the other somewhat curl'd at the Extremity; both which the Worm can lengthen, flatten, swell and contract at pleasure.

These Worms are supposed to lay their Eggs or Spawn in the Dog-Days, which being cover'd with a slimy Matter stick fast to the Sides of the Piles, wherein the Young ones, as soon as ever they are produced, begin to work themselves a Habitation. When a Worm enters a Pile, he bores

bores his Way strait forward or horizontally, till he meets with a Vein of Wood to his liking. He then turns and marches up the Pile perpendicularly, unless he come to the Channel of another Worm; in which Case he alters his Course a little, and then proceeds again in an upright Direction: For it is observ'd, that in all the Pieces of Timber which have been split for the Discovery of these Worms, not a single Cell or Channel has been found interfering or entangled with another, but each runs perfectly clear and distinct from the rest, though sometimes at no greater Distance than the Thickness of a Card. The Worms usually enter the Piles about a Foot from the Bottom of the Water, and as they advance a white slimy Matter issues from them, which hardens into a Sort of Crust, and forms a thin and very smooth Lining for their Channels. This Pipe or Shell defends their tender Bodies from the Roughness of the Wood, which might otherwise tear or hurt them; so that they slide up and down, or backwards and forwards, without any Inconvenience or Obstruction. In these Mansions the Worms live and die, never peeping out of the Timber of which they have once taken Possession.

THOSE who have carefully examin'd into the Structure and Operations of these Insects observe, that they are frequently thrusting out their little Tails at the Openings where they first enter'd; and it is supposed that one of the Tails serves them to discharge their Excrements, and the o-

ther for Respiration, or to draw up what Water they require. As for the two Claws with which they are furnish'd, they are probably of use to them in climbing up their Cells, or descending to the Aperture at the Bottom, whenever they find Occasion.

WORMS of this Kind are often very pernicious to Ships, by boring and eating the Planks under Water in the Manner we have been describing: But when Ships lie in Harbours where these Vermin abound, it is usual to spread upon their Sides and Bottom a Composition of Tar and beaten Glass, whereby they are prevented from doing the Mischief which would certainly follow the Neglect of such a Precaution. Thus we see (to use a natural Reflection of an ingenious Author) how those formidable floating Castles, which carry whole Armies, and belch out Fire and Smoak on every Side, seeming at once both the Glory and Safe-guard of Kingdoms, are in danger of being destroy'd by the Bite of an insignificant Reptile; and how so mean a Creature as a Worm, in the Hand of God, is a sufficient Instrument to teach Mankind the Weakness of all their boasted Strength.

We shall conclude this Article with an Account of a Sea-Animal, (which having been found on the Coast of *Holland* may as properly be mention'd here as in any other Place) namely, a *Mermaid*, a Creature generally supposed half human and half a Fish, and which is amphibious,

phibious, being capable of living on Land, though the Water is its natural and most agreeable Element. There are many Persons indeed who doubt the Reality of Mermen and Mermaids, and yet there seems to be sufficient Testimony to establish it beyond Dispute * ; for several Authors relate, that in the Year 1430, after a violent Tempest which had broke down the Dikes in *Holland*, some Milk-maids of *Edam*, a Town upon the *Zuyder-Zee*, going from

* Besides the Instance of the Mermaid found in *Holland*, we have many others attested by good Authorities. *Larry* informs us, that such a Monster was fish'd up in the Year 1187 on the Coast of *Suffolk*, which was kept six Months, and seem'd only to want Speech to render it a human Creature ; but one Day it took an Opportunity of making its Escape, and plunging into the Sea was never heard of more. — Another Animal of the same Species was taken in the *Baltic* in 1531, and sent as a Present to *Sigismund* King of *Poland*, with whom it lived three Days, and was seen by all the Court. — In 1560, near the Island of *Manar*, which lies a little Westward from that of *Ceylon*, some Fishermen brought up, at one

Draught of a Net, no less than seven of these Creatures ; whereof several Jesuits, particularly *F. Henriques*, and *Dimas Bosquez*, Physician to the Viceroy of *Goa*, were Witnesses. The Physician, who carefully examin'd and dissected them, asserts, that all the Parts, both internal and external, were perfectly conformable to those of a human Body. — We have also an Account of a Merman seen on the Coast of *Martinico*, by Persons who gave an exact Description of it before a Notary, and affirm'd they saw it wipe its Hand over its Face, and even heard it blow its Nose. — Add to all these another Animal of this Kind, which has been shewn this present Year (1748) in *London*, and several other Parts of *England*.

thence in a Boat to *Purmerend*, found a Mermaid left in the Mud with a very little Water. They took her into their Boat, wash'd her clean, and brought her to *Edam*, where they dress'd her in Women's Apparel, taught her to spin, and fed her in the same Manner as themselves. Some time afterwards she was sent to *Haerlem*, where she lived several Years; but could never be brought to speak, or even to attempt it, and always shew'd an Inclination to return to the Water. They taught her however to make the Sign of the Cross, and to pay a Sort of Reverence to a Crucifix; which we suppose made *Parival* imagine they had given her some Notion of a Deity.

MISCELLANEOUS CURIOSITIES.

WE have an Account that there is still preserved at *Scheveling*, a Village on the Sea-Coast about two Miles from the *Hague*, the Model of a *Land-Skip* or *Sailing Chariot*, which was made for Prince *Maurice* of *Nassau* by a celebrated Mathematician. In Form it resembled a Boat, was fix'd upon four Wheels of equal Bigness, had two Sails, was steer'd by a Rudder placed between the two hindmost Wheels, and was stopp'd either by letting down the Sails, or turning it from the Wind. In this Machine the Prince and his Companions used to divert themselves by sailing along the smooth

smooth Strand; and we are told it was contriv'd to move with such Ease and Swiftneſs, that a briſk Gale would carry eight or ten Perſons from *Scheveling* to *Petten* in three or four Hours Time, which is about fifty *Engliſh* Miles, the Perſon at the Helm directing its Courſe with very little Labour. Biſhop *Wilkins* mentions ſeveral great Men who have deſcribed and admired this curious Invention; but we can ſcarce give Credit to all that is reported concerning the Swiftneſs of its Motion.

In a Hill near *Maeftricht* there is a remarkable Stone-Quarry, which has one Entrance by the Side of the *Maefe*, where Carts can paſs with Eaſe, and unload the Stones on the Bank of the River. The Quarry runs parallel with the Horizon, and by the Light of Torchès affords one of the moſt ſurprizing Proſpects imaginable; for the Walks are ſpacious and level, and the Earth over-head is ſupported by ſeveral Thouſands of ſquare Pillars, moſt of them twenty Feet high, and all wrought with ſuch Neatneſs and Regularity, that it looks like a ſubterraneous Palace. There is very little Rubbiſh in this Quarry, which is owing to the Goodneſs of the Stone, and the Carefulneſs of the Workmen; and in ſeveral Places are little Pools of Water, which perhaps have been made on purpoſe for Beaſts to drink, and other Uſes. When Armies march that Way, the Quarry affords a ſecure Retreat for the Country People, who convey thither their Horſes, Cattle, and
moveable

moveable Furniture: And indeed it may well serve for such a Purpose, considering its vast Extent; for Mr. *Ellis*, who went into it, says it is three Hours in Length and one in Breadth, and capable of sheltering a hundred thousand Men; but the Chillness of the Place cost him a Fit of an Ague. The Stone dug out of this Quarry, according to the same Gentleman, is much like our *Kettering*; and the *Jesuits* have a fine Chapel built of it at *Maestricht*.—Let us now take a View of some of the principal Structures in the *United Provinces*.

BUILDINGS.

THE Churches of *Amsterdam* are, generally speaking, very handsome Structures, and adorn'd with fine Monuments of their Admirals and other great Men, who have distinguish'd themselves in the Service of their Country. The *Old Church* is a majestic *Gothic* Edifice, with a beautiful and lofty Steeple; and the *New Church*, which was burnt in 1645, but is now rebuilt, is a Fabrick worthy Observation. A Tower of exceeding Height was intended for it, and a Foundation laid accordingly upon more than six thousand Piles; which however not proving strong enough, the Design has not been completed. On the painted Windows of this Church is represented the Liberality of the Citizens in presenting the Emperor *Maximilian* with

with a large Sum of Money, and his bestowing an Imperial Crown for a Crest to the City. The Grate of cast Brass before the Chancel, being kept very bright, makes a pretty Appearance; and the Organ, which is supported by Columns of costly Marble, is remarkable for its Number of Pipes, and for its Imitation of human Voices: But the sumptuous Monument of the brave Admiral *de Ruyter* is perhaps the noblest Ornament of this Church, and deserves the Attention of those who have any Taste for excellent Sculpture.

THE great Church at the *Hague* is a magnificent Structure, and has a pretty high Steeple, but is not so extraordinary as to require a particular Description. The Choir is separated from the Body of the Church by a fine Brass Balustrade, which Kind of Ornament is to be seen in most of the Churches of *Holland*. Many Persons of Distinction are interr'd in this Church, and amongst the rest the Baron of *Opdam*, one of the most famous Admirals that *Holland* ever produced. His stately Monument was erected at the Expence of the Republick, a Tribute which the *Dutch* generally pay to the Memory of their Admirals and other Officers who have deserv'd well of their Country. Upon the Monument there is a long Inscription, giving an Account of the Baron's great Actions, and particularly of the Sea-fight with the *English* in 1665, wherein he was kill'd, his Ship being blown up in the Engagement, some say by Accident,

cident, and others by his own Order. In this Church there is a noble Organ, as there is in most Churches in the Cities and great Towns throughout the *United Provinces*.

THE New Church at *Delft* is a very majestic Building, its Steeple one of the highest and finest in the *Low Countries*, and the Chimes the most harmonious imaginable, consisting of several hundred Bells of different Sizes. But this Church is most remarkable for a magnificent Mausoleum erected over the Remains of *William I. Prince of Orange*, the Founder of the Republick, who was assassinated at *Delft* by an Emissary of the King of *Spain*. His Statue is of Brass, completely armed, with several emblematical Figures round him, and proper Inscriptions; the Whole of admirable Workmanship, and executed in a masterly Taste.

THE great Church at *Gouda* is one of the noblest Structures of the Kind in *Holland*, and has a stately Tower, which, together with the Church, was burnt down by Lightning in 1552, but was rebuilt with more Splendor than before. The Paintings on the Windows, which represent in the most lively Colours several Pieces of sacred and profane History, are scarce to be parallel'd in *Europe*. They are the Work of two Brothers, *Theodore* and *Walter Crabeth*, who were Natives of *Gouda*, and whose Performances are reckon'd much more beautiful than any thing done by later Artists in that Manner of Painting.

MOST

MOST of the Churches at *Middleburg* in *Zea-land* are sumptuous Edifices, and worthy a Traveller's Attention. The Tower with a Clock on the Top of it is particularly remarkable, being very lofty; and the Clock, with its Dial, is said to have cost 15,000 *l.* Sterling.—At *Utrecht* the Churches in general are magnificent, especially that of *St. Martin*, formerly the Cathedral, where *Charles* the Fifth, in 1536, held a solemn Meeting of the Knights of the Golden Fleece. It is usually call'd the *Dome*, and has a high Tower, ascended by 460 Steps, from whence there is a fine Prospect round the Country, of fifteen or sixteen Cities, and a vast Number of considerable Villages.—The Church of *St. Mary* in the same City, commonly call'd the *English* Church, is much taken notice of on account of a Story concerning one of its Pillars. When the Workmen began the Building, it is said they met with a Quagmire where the Foundation of this Pillar was intended to be laid, and none of them knew how to surmount the Difficulty. At length one *Fuso*, reckon'd an ignorant Fellow, undertook to do it, but ask'd an exorbitant Price; which the Bishop not being willing to give, privately dealt with the Man's own Son to pump out the Secret, which was to cover the Quag with Bulls-Hides. This being done accordingly, and *Fuso* disappointed of his expected Reward, he was so enraged that he stabb'd the Bishop, as the Story relates. There

is a *Latin* Inscription on the Pillar, asserting its being built on such a Foundation.

AT *Nimeguen* in *Guelderland* there are several fine Churches, the chief whereof is that of *St. Stephen*, a noble Structure, whose Roof is supported by thirty-five Pillars of excellent Workmanship; and its lofty Tower, which was beat down in the War with *Spain*, has been since rebuilt with extraordinary Magnificence. In the Choir of this Church is the Tomb of *Catharine* of *Bourbon*, Wife of *Adolphus* Duke of *Guelderland*, with her Statue in Brass, and sixteen Coats of Arms, denoting her Descent.—The principal Church of *Zutphen*, in the same Province, is also a sumptuous Fabrick, with a very high Steeple built in the Year 1635; after having been twice destroy'd by Lightning. It is noted for a fine Monument of *Otho* III, Count of *Nassau*, and his Lady; and for a large brass Font of very curious Workmanship.

IN the *Dutch Brabant* we find several stately and beautiful Churches, particularly the great Church at *Breda*, which has a handsome Spire 362 Feet high, and is adorn'd with many noble Monuments of Persons of Distinction. That of *Anglebert* II. Count of *Nassau*, who is represented in Armour as when alive, is very much admired; the Whole being such an exact Resemblance of Nature, that it is hardly possible for human Art to do any thing more perfect.—To this we may add the Cathedral at *Bois le-duc*, now in the Hands of the Protestants, which

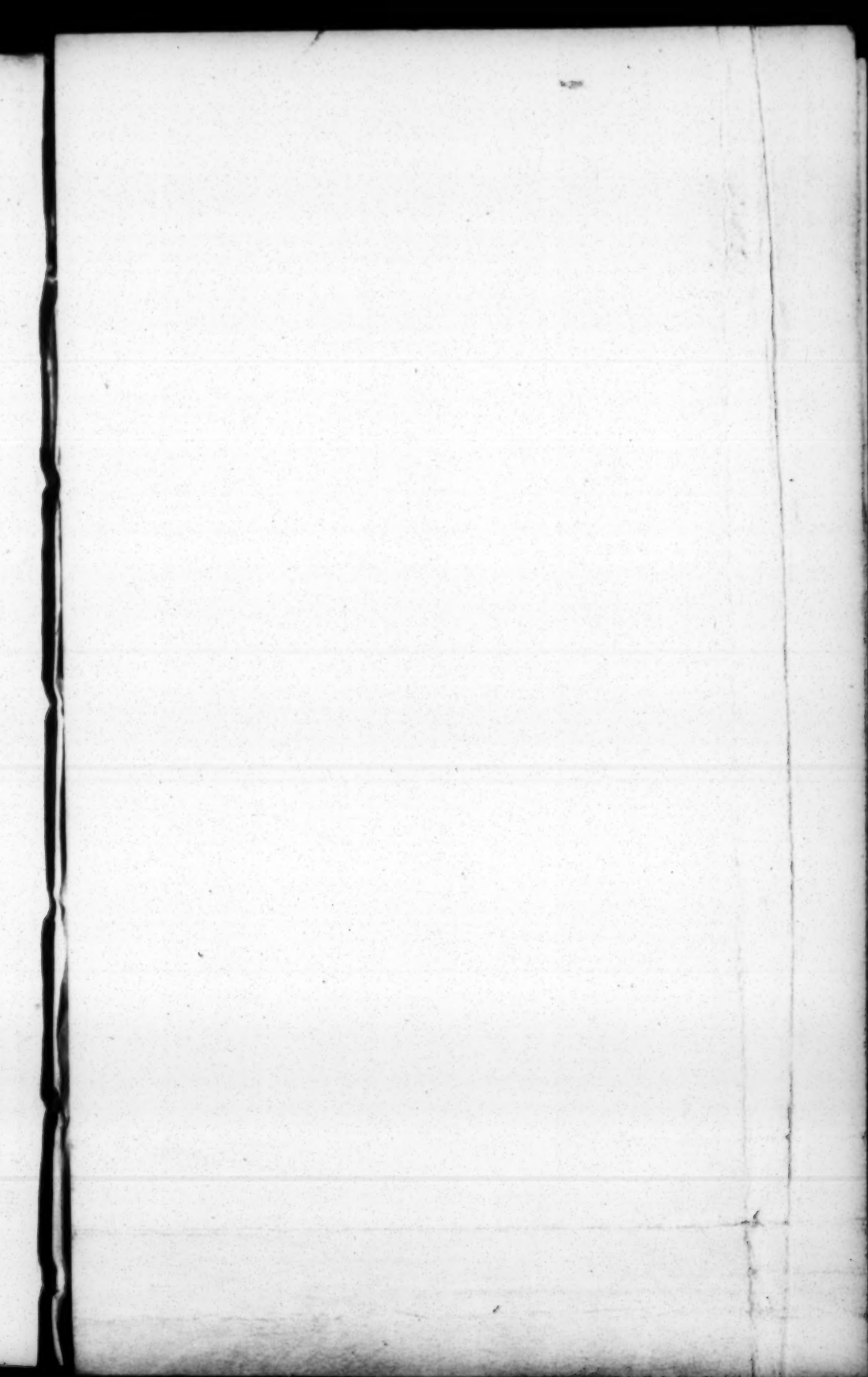
which is one of the most sumptuous Churches in the *Netherlands*.

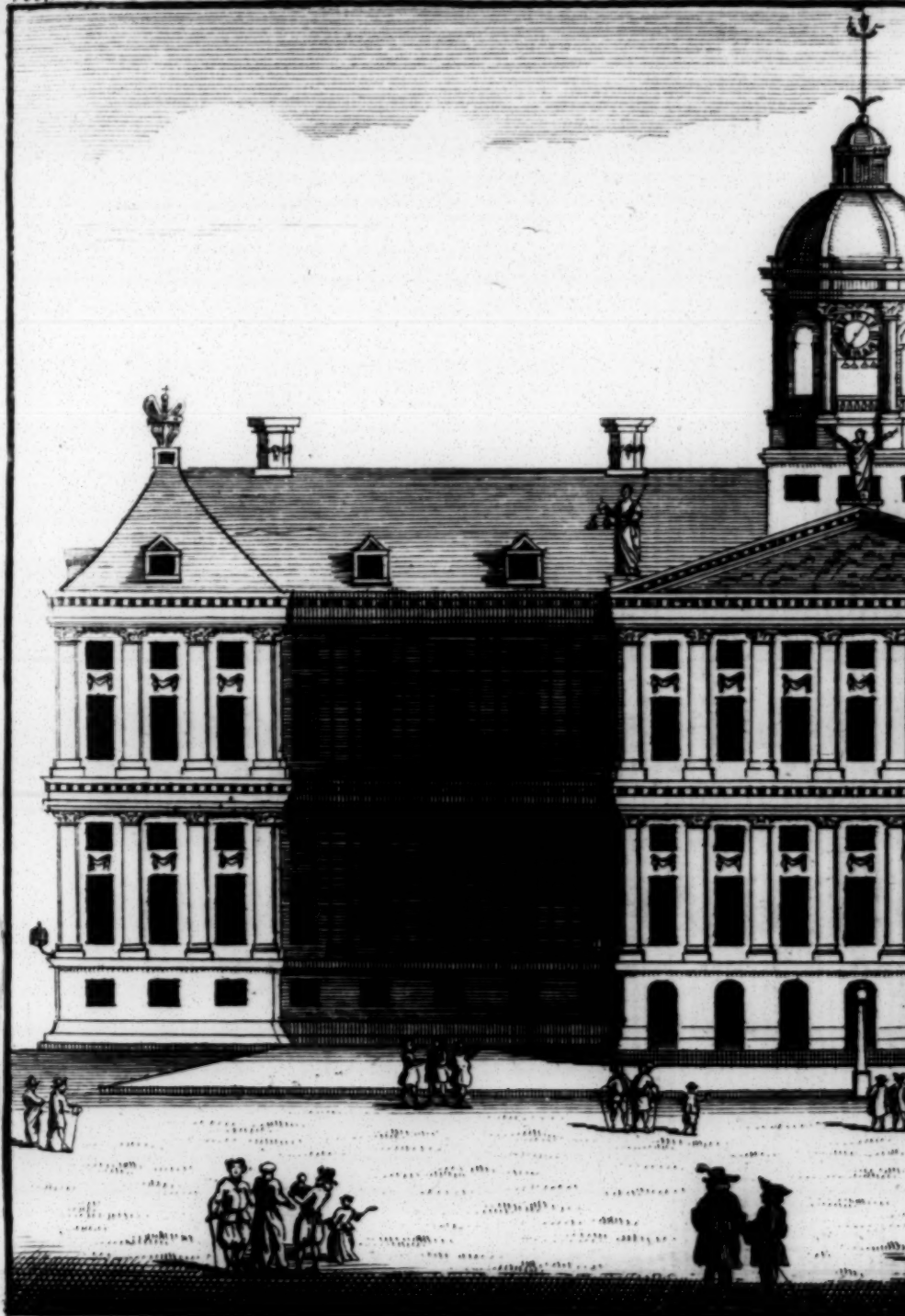
As to the Palaces in the *United Provinces* belonging to their ancient Nobility, there are scarce any that merit a Description, except that of the Prince of *Orange*, which stands in a pleasant Wood about a Mile from the *Hague*, and is commonly call'd the *House in the Wood* on account of its Situation. It is a neat and beautiful Structure, built by *Amelia*, Widow of *Henry-Frederic* Prince of *Orange*, having a large Grove before it, and a large Garden behind. The House has a Moat round it, over which we pass by a Draw-Bridge, and enter through a Gate into a long shady Avenue, which leads us to the Front of the Building. Here we ascend a grand Flight of Steps, on each Side whereof there is a Statue, one of *Ceres*, the other of *Pomona*, both something bigger than the Life, and of admirable Workmanship. On the Right are likewise placed the Statues of *William I.* and Prince *Maurice*, and on the Left those of *Henry-Frederic* and *William II.*, all of white Marble. The grand Salon, which is of an octogonal Form, takes up the Body of the Building, and is exceeding beautiful and magnificent, the Floor being Walnut-Tree, and cover'd with rich Carpets. But the principal Ornament of this Salon, and indeed of the whole Palace, are the fine Paintings done by the most eminent *Flemish* Masters, and particularly the celebrated *Rubens*. That

of *Vulcan* in his Shop, which is placed near the Chimney, is the Work of his Pencil, and is reckon'd the best Piece in the whole Collection. The military Exploits of *Henry-Frederic*, which take up one Side of the Salon, and the Picture of the Princess *Amelia* in Mourning, are likewise excellent Performances; and in one of the Drawing-Rooms there is a Flower-Piece valued at 1500*l.* Sterling. The Apartments are furnish'd in an elegant and sumptuous Manner; and there is a Rail of curious *Japan* Work, that runs along the Foot of the Princess's Bed, said to have cost near three thousand Pounds, being inlaid with Mother of Pearl and precious Stones, which twinkle like the Stars in a dark Night.—On the present Prince's Marriage with the Princess Royal of *Great Britain*, his Highness caused two Wings to be added to this charming Seat, which make it abundantly more commodious for a Family than it was before. The new Building is in the same Taste with the old, and the Furniture and Ornaments every way suitable to the Beauty of the Structure.

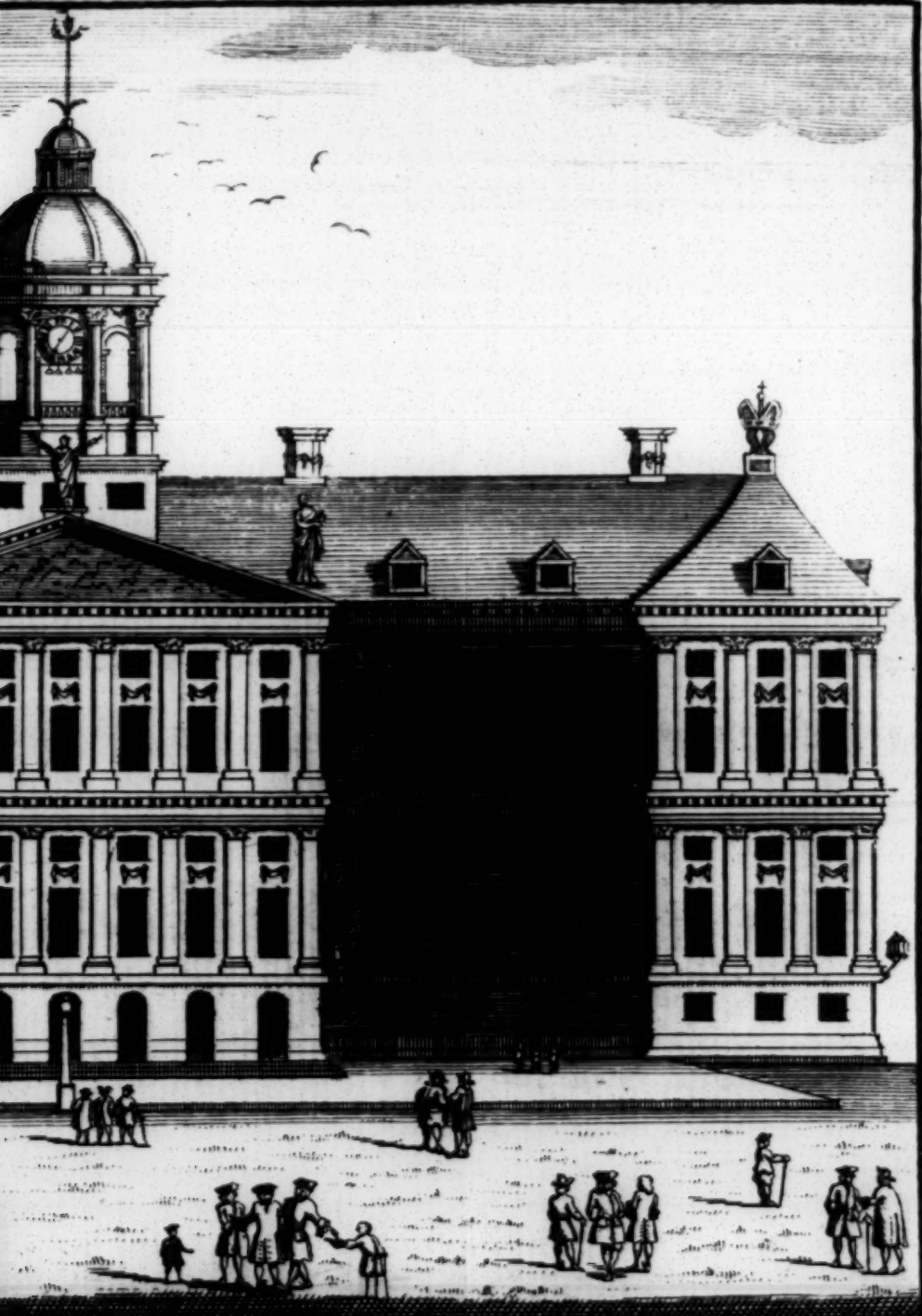
THERE remains yet one Fabric to be described, *viz.* the Stadthouse of *Amsterdam*, which is not only the most magnificent in the Seven *United Provinces*, but is generally thought to surpass any thing of the Kind in *Europe*. This superb Edifice is all of Freestone, built upon 13659 Piles*, driven into the Ground close to

* This Way of building *Netherlands*, where the Ground is very common in the *Netherlands* is soft and marshy; so that
one





THE STADTHOUSE O.



E OF AMSTERDAM.

B. Cole Sc.

one another; and the first Stone of it was laid on the 28th of *October*, 1648. It is a square Building, 282 Feet in Length, 235 in Depth, 90 Feet high in Front, and 160 to the Top of the Cupola. It has above four hundred Windows, and is adorned with a great Number of Pilasters of the *Corinthian* Order. On the Pediment in the Center of the Front is an admirable Piece of Sculpture in *Relievo*, representing the City of *Amsterdam* under the Figure of a Woman sitting in a Chair supported by two Lions, and holding on her Knee the Arms of the City. In her Hand she has an Olive-Branch, the Emblem of Peace; and is attended by Sea-Nymphs, who present her with Crowns of Palm and Laurel. Here are also represented *Neptune* and his *Tritons*, with several Water-Animals; the Whole in Marble, and the Workmanship extremely curious. At each Side and on the Top of this Pediment are placed three brazen Statues, representing *Justice*, *Fortitude*, and *Prudence*; and just behind it there is a

not only the Stadthouse, but the whole City of *Amsterdam* stands upon such Foundations, viz. large Piles of Fir driven perpendicularly into the Earth, or rather Water, so close to each other that nothing can be forced between them. Hence that facetious Saying of *Erasmus*,

in a Letter from *Amsterdam* to one of his Friends, that *he was arrived in a City where the Inhabitants lived upon the Tops of Trees*. This however is a very expensive Method of building, for the Foundation of the Stadthouse is said to have cost 100,000 *l.* Sterling.

handsome Dome or Cupola, wherein hangs a great Number of Bells, which compose very musical Chimes. In this Front of the Stadthouse there are seven Doors, or rather open Arches, alluding (as is supposed) to the Seven Provinces of the Republick.—The back Front of the Building has also a Pediment, with an excellent Bass-Relief in Marble, representing the extensive Commerce of the City of *Amsterdam* under the Emblem of a Woman with a winged Cap on her Head, to whom the four Parts of the World (denoted by proper Figures) offer Presents of their respective Productions. On the Sides of the Pediment are the Statues of *Peace* and *Plenty*, and on the Top of it stands a large *Atlas* with a Globe of Copper on his Shoulders.—When we come to view the Inside of this stately Fabric, we are astonish'd at the Profusion of fine Paintings, Sculptures, and other Ornaments. The Courts of Judicature (and indeed the greatest Part of the Building) are lined with Marble, and adorn'd with curious emblematical Figures, or historical Pieces, relating to the Distribution of Justice; particularly a Representation of *Solomon* giving Judgment between the two Harlots: And at the Entrance of every Office or Chamber we find some Sculpture, or other Decoration, adapted to the Nature of the Business therein transacted; all which are executed with so much Art, that they are admired by the nicest Judges.—We ascend up Stairs to the great Hall,

Hall, at the Entrance of which are two strong Folding-Doors of Brass, and several fine Marble Columns twenty Feet high, supporting a most beautiful Cornice. Over this Cornice sits the Figure of a Woman representing the City, the Arms whereof she wears on her Breast, and an Eagle places on her Head an Imperial Crown. At her Feet are two Lions; on one Side is a Statue of *Fortitude*, and that of *Minerva* on the other; and four naked Children hover round her with Cornucopia's, pouring out Fruits and Flowers. The Beauty and Magnificence of this Hall are hardly to be described; the stately Marble Pillars, the Representation of the Four Elements at the Corners, the exquisite Paintings, Statues, and various other Ornaments, at once surprize and charm the Spectator: But the greatest Curiosity of all is wrought on its Marble Floor, on which the Celestial and Terrestrial Globes are represented in Planisphere; the Constellations in the one, and the several Parts of the Earth in the other, with the principal Circles, being all delineated in Brass very neatly laid into the Marble, and the Names of the Countries expressed in the same Manner. Each Hemisphere is about twenty-two Feet in Diameter, and the Whole is admired by all that see it as a most ingenious Performance.—What we have said is sufficient to give the Reader a just Idea of this sumptuous and majestic Structure; and therefore we shall only add, that it has cost the City of

Amsterdam three Millions Sterling, which is more than the Expence of the *Spanish Escorial* and *St. Paul's* in *London* put together.

INVENTIONS, MANUFACTURES, &c.

SEVERAL useful Inventions have had their Rise in the *United Provinces*, particularly that of the *Spying-Glass* or TELESCOPE, one of the noblest the modern Ages have to boast of; by means whereof the Wonders of the Heavens are discover'd to us, and Astronomy brought to a Degree of Perfection, which it was impossible the Ancients could ever think of, without the Assistance of such an Instrument. The Invention indeed is rather owing to Chance than Thought; for it is said that the Children of a certain Spectacle-Maker at *Middlebourg* in *Zealand*, playing in their Father's Shop, happen'd to hold two Glasses between their Fingers, at some Distance from each other, through which the Weather-Cock on the Steeple appear'd much bigger than ordinary, and as if it were very near them, but inverted. With this the Children acquainted their Father, who, being surprized at the Singularity, bethought himself of fixing two Glasses in Brass Circles, and placing them so as to be drawn nearer or removed farther at pleasure; and by this means he found he could see distant Objects more distinctly. This happen'd towards the Beginning of the
last

last Century, but Authors are divided about the Name of the Spectacle-Maker, though it is generally said to be *Zachary Jansen*, who soon improved his Discovery so far as to present a Telescope twelve Inches long to Prince *Maurice of Nassau*. In the Year 1620 *James Metius*, Brother of *Adrian Metius* Professor of the Mathematics at *Franeker*, came to *Middlebourg*, where he bought Telescopes of *Jansen's* Sons, who had made them publick; and yet *Adrian* has given his Brother the Honour of the Invention, which has led other Writers into the same Mistake*.

NONE of the Telescopes, however, made by these Artificers were above eighteen Inches long, nor proper for astronomical Observations: But the famous *Galileo*, Astronomer to the Grand Duke of *Tuscany*, having heard of a Sort of optic Glass made in *Holland* which brought Objects nearer, set himself to consider how it

* *Wolffius* will have it, that *J. Bapt. Porta*, a noble *Neapolitan*, was the first who made a Telescope, grounding his Opinion on what that Nobleman says in a Treatise printed in 1549, concerning concave and convex Glasses rightly join'd together, with which he had assisted many of his Friends, who could only see Objects in a con-

fused Manner. But it is certain *Porta* never troubled himself about improving his Invention, or applied it to celestial Observations; and the Account he gives of his Glasses is so dark, that *Kepler*, who examined it by Command of the Emperor *Rodolphus*, declared it was quite unintelligible.

should

should be; and having ground two Pieces of Glass into Form as well as he could, he fitted them to the two Ends of an Organ-Pipe, and by this means made great Discoveries in the celestial Regions, which he shew'd to the *Venetian* Nobility on the Tower of *St. Mark*. From this Time *Galileo* applied himself wholly to the improving the Telescope; and hence the Honour of the Invention is frequently ascribed to him, and the Instrument has been denominated *Galileo's Tube*.

ALL the Discoveries made by this sagacious Astronomer tended to confirm the Truth of the *Copernican* System, which is now generally received as the true System of the World*. In the Year 1610 he discover'd the four Satellites or Moons of *Jupiter*, (as *Simon Marius*, Ma-

* The *Copernican* or *Solar* System of the World is that which supposes the SUN to be placed in the Centre, and the Planets and Comets to revolve about it in different Periods of Time, and at different Distances. *MERCURY* (for Instance) at the Distance of about 32 Millions of Miles, revolves round the Sun in 87 Days, 23 Hours, and 16 Minutes: *VENUS*, at the Distance of about 59 Millions of Miles, in 224 Days, 16 Hours, 49 Minutes: The *EARTH*, at the

Distance of about 82 Millions of Miles, in 365 Days, 6 Hours, and 9 Minutes: *MARS*, at the Distance of 123 Millions of Miles, in 686 Days, 23 Hours, 27 Minutes: *JUPITER*, at the Distance of 424 Millions, in 4332 Days, 12 Hours, 20 Minutes, or almost 12 Years: *SATURN*, at the Distance of 777 Millions of Miles, in about 30 Years: And the *COMETS*, whose Orbits are very eccentric, in different Periods and Situations.

thematician

thematician to the Elector of *Brandenburg*, did about the same Time) but his Telescope was not good enough to reach those of *Saturn*, though he found that Planet made an odd Appearance, which very much perplex'd the Astronomers to account for, and various Hypotheses were form'd for that Purpose. These all seem'd trifling to M. *Huygens*, who thereupon applied himself to improve the Grinding of Glasses and perfecting long Telescopes, in order to obtain a more accurate Knowledge of *Saturn* and his Appendage; and accordingly in 1655 he constructed a Telescope of twelve Feet, with which he discover'd a stupendous Ring encompassing the Body of that Planet. With a larger Tube he discern'd a Satellite revolving round him, and four more were afterwards discover'd by *Cassini*. —It was *Galileo* who likewise first observ'd several dark Spots passing over the Sun's Disk, from whence he appears to have a Motion round his Axis; and the like Phænomena are observable on the Surface of some of the Planets.

TELESCOPES are of two Sorts, viz. *Refracting* and *Reflecting*. A *refracting* Telescope consists of an Object-Glass, in the Focus* whereof the Image of a distant Object is form'd, but in an inverted Position. This Image may be view'd by a single Lens or Eye-Glass, as is usually

* By *Focus* Opticians mean that Point wherein several Rays concur and are collected, after having undergone either Refraction or Reflection.

done in viewing the heavenly Bodies, because it is not material whether they appear erect or inverted; but to view terrestrial Objects, whose Image we would have erect, two other Lenses are necessary. If instead of a convex Glass we use a concave one of the same focal Length, it will render the Object erect, equally magnified, and more distinct and bright: But the Disadvantage of this Glass is, that it admits of only a small Area or Field of View, and is therefore not fit to be used when we would see much of an Object, or take in a great Compass; it is very useful however in viewing the Planets and their Satellites, *Saturn's Ring, &c.* And this is properly the *Galilean Telescope*.

BUT the *reflecting Telescope* is the noblest and most useful of all others, which consists chiefly of *Specula* or Mirrors instead of Lenses, and is the Invention of the great Sir *Isaac Newton*. What put him upon applying his Thoughts this Way, was the Indistinctness of Vision by refracting Telescopes, which he found was owing to the different Refrangibility of the Rays of Light; from whence he concluded, that *Refraction* was too unequal a Principle, and that Lenses, of what ever Figures, and how truly soever ground, would never suffice for the Perfection of Telescopes. Upon this he had Recourse to a more equable Principle, *viz.* that of *Reflection*, and made a Telescope consisting of Mirrors, the first Hint whereof he owns he took from Dr. *Gregory's Optics*. This Instrument

ment has since receiv'd some farther Improvements, infomuch that a reflecting Telescope, not more than twenty Inches long, may be made to magnify an Object as much as a refracting one sixteen Feet in Length.

To the Invention of the Telescope succeeded that of the MICROSCOPE, an Instrument contrived to magnify the smallest Objects, so that they may be view'd distinctly. By whom Microscopes were invented is not certainly known, but probably we owe the Discovery to the *Hollanders*, since *Huygens* tells us that *Drebel*, a *Dutchman*, had the first Microscope in 1621, and that he was reputed the Inventor of it, though the Honour is claim'd by *Fontana*, a *Neapolitan*, who dates it from the same Year. — They are properly distinguish'd into *Single* and *Compound*, the former consisting only of one Glas, and the latter of several duly combined: And some of these are contrived to do their Office by Refraction, others by Reflection, and others by Refraction and Reflection conjointly. A single Microscope is either a Lens or a Spherule; but as little Glas Spheres may be made much smaller than any Lens, so the best Microscopes, or those which magnify most, are of the spherical Kind*. Mr. Gray, and

* There are various Methods of casting Glas Spherules for Microscopes, one of which is thus given us by

Dr. Adams. Take a Piece of fine Window-Glas, and cut it with a Diamond into as many Lengths as you think

others

others after him, have contrived *Water-Microscopes*, consisting of Spherules or Lenses of Water instead of Glass; but these magnify less, and are therefore less esteemed. Hollow Glass Spheres, of the Diameter of half a Digit, fill'd with Spirit of Wine, are frequently used for Microscopes, but these magnify still less than the former.—With regard to double or compound Microscopes, the best are those which consist of one Object-Glass and two Eye-Glasses; for as Objects appear dim when view'd through many Glasses, Part of the Rays being reflected in passing through each, the multiplying of Lenses is not adviseable. The double Microscope contrived by our Countryman Mr. *Marshall* is of a commodious and curious Structure; but the Pocket-Microscope of Mr. *Martin*, furnish'd with a Micrometer to measure the smal-

needful, not exceeding an eighth Part of an Inch in Breadth; then holding one of those Lengths between the Fore-finger and Thumb of each Hand over a very fine Flame till the Glass begins to soften, draw it out till it be as fine as a Hair and break. Then applying each End to the purest Part of the Flame, you will presently have two Spheres, which you may make larger or smaller at pleasure; but if

they continue long in the Flame they will have Spots, so that they must be drawn out immediately after they become round. As to the Stem, break it off as close to the Ball as possible, and lodging the Remainder of the Stem between the Plates, and drilling the Hole exactly round, all this Protuberance is buried between the Plates, and the Microscope performs to Admiration.—See *Phil. Transf.* N°. 325.

lest

left Parts of an Object, is perhaps the plainest, the most expeditious for Use, and the cheapest of any f the compound Sort hitherto invented. — Here it may be observed, that any Telescope is converted into a Microscope by removing the Object-Glass to a greater Distance from the Eye-Glass: And since the Distance of the Image is various, according to the Distance of the Object from the Focus, and it is magnified the more as its Distance from the Object-Glass is greater, the same Telescope may be successively converted into Microscopes which magnify the Object in different Degrees.

MANY ingenious Foreigners, as well as our Countrymen, have applied themselves with great Diligence to improve the Microscope, and by means thereof to lay open the secret Wonders of Nature: And indeed what surprizing Discoveries may we not expect in the minute Parts of the Creation, from an Instrument that makes a small Grain of Sand appear as big as a Nut *, or a Hair of the Head above an Inch in

* *Eustachio Divini* made a Microscope, wherein, instead of an Object-Glass convex on each Side, he used two plano-convex Glasses, so placed as to touch one another in the Middle of their Convexities. On viewing with this Microscope small Grains of searced Sand, he

perceiv'd an Animal of many Feet, its Back white and scaly, but so small, that tho' the Microscope shew'd every Grain of Sand as large as an ordinary Nut, the Animal appear'd no bigger than one of the Grains seen without a Microscope. *Philos. Transf.* N° 42.

Diameter †? But of all those who have bent their Studies this Way, none have pursued them with more unwearied Application, or made more curious and important Discoveries than the celebrated M. *Leeuwenboeck*, a *Hollander*; and therefore as we are treating of that Country, it may not be amiss to be a little more particular with regard to that Gentleman's Microscopes, great Part of which he bequeathed to the *Royal Society* at his Decease.

THIS Legacy consists of a small *Indian Cabinet*, in the Drawers of which are thirteen little Boxes or Cases, each containing two Microscopes handsomely fitted up in Silver; all which, not only the Glasses, but the *Apparatus* for managing them, were made by M. *Leeuwenboeck* himself. Each Microscope had an Object placed before it, and the whole was accompanied with a Register of the same in his own Hand-writing, as being desirous the Gentlemen of the Society should be enabled without Trouble to examine several of those Objects on which he had made the most considerable Discoveries,

† Mr. *Wilson*'s largest Magnifiers would shew to any Eye a Hair of the Head considerably above an Inch in Diameter, and to some Eyes it would appear two Inches? but supposing it a bare Inch, and that (as Dr. *Hook* affirms) 640 Hairs-breadth make an Inch, the Length and Breadth

of an Object will by such a Glass be enlarged 640 Times, the Surface 409,600 Times, and the Solidity 262,144,000 Times: And yet the best of our Glasses fall short of M. *Leeuwenboeck*'s in Power and Goodness. *Philosoph. Trans.* N°. 284.

and

and which he thought in a particular Manner deserved their Attention. Amongst these Objects are some Globules of Blood * ; the Eye of a Gnat ; small Pipes, which compose the Tooth of an Elephant ; Part of the CrySTALLINE Humour from the Eye of a Whale ; the Instruments from whence a Spider spins the Threads that compose its Web † ; the *Animalcula in Semine mas-*

* The Blood, when view'd by a Microscope, appears to consist of little red Globules, swimming in an aqueous Liquor, supposed, to be the *Cruor* and *Serum*, which separate after Emission. M. *Leeuwenhoek* computes these Globules to be twenty-five thousand Times smaller than the smallest Grains of Sand, and Dr. *Jurin* makes them still less. Upon an accurate Mensuration he found the Diameter of one of them equal to $\frac{1}{3240}$ Part of an Inch, or less than $\frac{1}{324}$ of an ordinary Hair of the Head. — Dr. *Drake* thinks the Parts of the Blood are not naturally globular, though its rapid Motion may make it appear so ; and Dr. *Adams* observed with his Microscope, that the Blood, immediately after Emission, is so far from exhibiting any red Globules, that

it appears to consist of infinite Branches running confusedly together, and variously coloured.

† M. *Leeuwenhoek* having dissected the Body of the largest Spider he could find, and nicely examined each Part, at last discover'd the vast Number of Instruments from whence the Spider draws Threads of various Fineness, which he judged to be at least four hundred, lying not close together, but in several distinct Clusters. Another Time this Gentleman took a Spider, and laid it upon its Back so that it could not stir, and then pull'd out with a very fine Pair of Pincers a Thread that he perceiv'd sticking out of one of the working Instruments. At the same Time he saw a great many very fine Threads issuing out of its Body, which, at the Distance

culino of a Lamb, taken from the Testicle; a Bunch of Hair from the Insect call'd a Hair-Worm; the double Silk spun by the Worm; the Eye of a Fly; and several other Subjects proper for microscopical Observations.

IT would be endless to enter into a Detail of what is to be observed in these Objects, or to give a full Account of M. *Leewenboeck's* Discoveries; they are so numerous as to make up a considerable Part of the *Philosophical Transactions*, and when collected together fill four Volumes in Quarto, which were published by himself at different Times; and are of such Confe-

quence of a Hair's-Breadth or two from the Body, were join'd together and made thick Threads. Some of these Threads were so extremely fine, as almost to escape his Sight, though he made use of his best Glasses. Hence it appears, that the Threads of a Spider's Web, which to the naked Eye seem to be single, do really consist of several Threads; some of which, even supposing the Spider full-grown, are so exceeding fine, that M. *Leewenboeck* thought a hundred of them put together would not make a hundredth Part of the Thickness of a Hair of his Head. Ten thousand, therefore, of the fine Threads of

a full-grown Spidlet are not so thick as a Hair; and if we add to this, what is really true, that four hundred young Spiders, when they first begin to spin, are not, one with another, bigger than a full-grown one, and that each of those Spiders are provided with all the Instruments of the old one, it will follow, that the smallest Thread of a young Spider is four hundred Times smaller than that of a great one; and if so, then four Millions of such Threads are not so thick as a Hair of a Man's Head; which is a Fineness quite astonishing, and beyond our Conception.

quence.

quence as to have open'd new Scenes in some Parts of Natural Philosophy, particularly that famous Discovery of *Animalcula in Semine masculino*, which has given a quite different Turn to the Theory of Generation, in most Authors who have since written upon that Subject *. By way of Note, however, we have just mention'd a few of that Gentleman's Observations, which we are persuaded will not be disagreeable to the Curious.

* There are two principal Theories or Methods of accounting for the Generation of Animals. The one supposes the *Embryo* or *Fœtus* to be originally in the Seed of the Male; the other in the *Ovum* or Egg of the Female. The first supposes *Animalcules* in the Male Seed to be the Rudiments of the *Fœtus*, and that the Female only furnishes them with a proper *Nidus* and Nourishment; the second supposes the first Rudiments of the Animal to be in the *Ova*, which the Male Seed only serves to warm, cherish, and ripen in the Ovary. Each of these Systems has its Advocates, and plausible Arguments on its Side; but it is not our Business to enter into the Dispute. We have only to observe, that M. *Leeuwen-*

boeck was the first Discoverer of those innumerable *Animalcules* which are found floating in *Semine masculino*, not only of the human Species, but of Beasts, Birds, Fishes, and Insects; and though his Doctrine met with considerable Opposition, it seems now pretty generally received. Not to mention other Reasons, the Generation of Animals *ab Animalculo* is scarce to be doubted, if we consider the Analogy between Plants and Animals. All Vegetables are produced in the like Manner; for the Seed of every Plant is nothing but a little Plant of the same Kind, folded up in Coats and Membranes, which being thrown into the Earth, as into its *Uterus*, spreads forth its Roots, and receives from thence its

As to the Structure of these Instruments, it is the same in them all, and the *Apparatus* is very simple and convenient. They are all single Microscopes, consisting each of a very small double-convex Glafs let into a Socket between two Silver Plates, rivetted together and pierced with a small Hole. The Object is placed on a Silver Point or Needle, which by means of Screws of the same Metal may be turn'd about, rais'd or depress'd, and brought

Nourishment: And therefore we may reasonably suppose, that so curiously an organized Creature as an Animal proceeds from an Animalcule of the same Kind, and has all its little Members folded up according to their several Joints and Plicatures, which are afterwards enlarged and distended.—But to give an Instance or two of M. *Leeuwenboeck's* Observations on the *Semen* of male Animals. Having examined the Seed of two young Cocks newly kill'd, he found it full of Animalcules with very small Tails, for the most part folded, and their Bodies seem'd crooked or circular. He afterwards took a Cock that had been kill'd and pluck'd the Day before, and having squeez'd out a Drop

of the Seed, and put it immediately before his Microscope, he could see Legions of those Animalcules swimming together and crossing each other, and as lively as if the Cock had been newly kill'd; but taking out a little more of the Seed about twelve Hours after, he could not perceive any of them living. M. *Leeuwenboeck* had often squeez'd out of the hinder Part of the Bodies of male Spiders a little white Matter, about the Bigness of a Grain of Sand, which he was fully persuaded was the Seed of those Animals; and having accordingly examined it with his Microscope, he discover'd therein a vast Number of Animalcules, which continued alive a considerable Time. They were

nearer

nearer or removed farther from the Glass, as the Eye of the Observer, the Nature of the Object, and the convenient Examination of its several Parts may require. If the Objects were solid, M. *Leewenboeck* fix'd them to this Silver Point with Glue; but if fluid, or of such a Nature as not to be commodiously view'd unless spread upon Glass, he first fitted them on a little Plate of Talc, or very thin blown Glass, which he then glued to the Needle. For viewing the Circulation of the Blood, and some other Observations, he had a different *Apparatus*.

THE Glasses of these Microscopes are all exceeding clear, and shew the Object very bright

so extremely small, that he supposed 1,000,000,000 of them join'd together would not be equal to a Barley-corn in Bigness; and by reason of their exceeding Smallness he could not possibly represent the exact Figure of their Bodies, nor of the Instruments wherewith they moved so strongly as to continue living above five Hours after they were separated from the Spiders.—In short, the Microscope discovers Millions of Animalcules not only in the Seed of Animals, but in most Liquors, as in Water, Wine, Vinegar,

Beer, Brandy, Spittle, Urine, Dew, &c. also in Infusions of Pepper, Bay-berries, Oats, Barley, Wheat, &c. In Pepper-Water particularly they have been observ'd almost incredibly minute, appearing to the greatest Magnifiers not so big as a Mite does to the naked Eye; insomuch that the Observer computed, that if a Hair of the Head were split into more than 7800 equal Fibres, each Fibre would be as thick as one of those little Animals.—On this Subject see the *Philos. Transf.* passim.

and

and distinct; which is undoubtedly owing to M. *Leewenhoeck*'s great Care in the Choice of his Glass, and his Exactness in giving it the true Figure. Their Powers of magnifying are different, as may be requisite for different Sorts of Objects; but being all ground Glasses, none of them are so small, nor consequently magnify to so great a Degree, as some of those little Drops or Spherules frequently used in other Microscopes: However, their Distinctness much exceeds what is usually met with in Glasses of that Sort, which was the End M. *Leewenhoeck* principally aim'd at; for though he had Glasses by him of an extraordinary Smallness for upwards of forty Years, he made very little Use of them, as having found, in a long Course of Experience, that the greatest Discoveries were to be made with such Glasses, as, magnifying but moderately, exhibited the Object with the most perfect Brightness and Distinctness.

THERE is another Instrument said to have been first contrived by *Drebel*, the *Dutchman* already mention'd, viz. a THERMOMETER, or what is popularly call'd a *Weather-Glass*. As this Instrument is design'd to shew the various Degrees of Heat and Cold by the elastic or expansive Power of fluid Bodies, so divers Methods and Forms of constructing it have been thought of at different Times; first *Air*, then Oil, then *Spirit of Wine*, and lastly *Quicksilver*, having been every Way applied in this Experiment. The most common Thermometer is
that

that made with Spirit of Wine, whose Structure is as follows. A Glass Ball, fix'd to the Bottom of a narrow Tube, is fill'd with rectified Spirit of Wine tinged with a little Cochineal, and the Top of the Tube is hermetically sealed by the Flame of a Lamp, which secures it from the Pressure of the Air. Now, Spirit of Wine rarefying and condensing very considerably, as the Heat of the ambient Air increases the Spirit is dilated, and consequently ascends in the Tube; and as the Heat decreases the Spirit is condensed, and consequently descends; so that the different Degrees of Heat and Cold are known by the Ascent and Descent of the Liquor, being shewn by a graduated Scale on the Board to which the Tube is affix'd. The Ball must be large in Proportion to the Bore of the Tube; and that the Heat or Cold may sooner penetrate the innermost Parts of the Liquor, the Ball should not be spherical, but oblong and flatted like a *French* Flask.

THE great Defect of these and other Thermometers is, that they are not reduced to one certain Standard, and therefore cannot be compared together. They mark indeed the different Degrees of Heat and Cold; but each marks only for itself, and after its own Manner, as not proceeding from any Point of Heat or Cold that is common to them all. Nor can we be assured that when the Spirit is risen a Degree in two different Thermometers, they have both

both suffer'd the Impression of an equal additional Heat; since the Spirit of Wine may not be the same in both; and this Spirit will rise more or less by the same Heat, in Proportion as it is more or less rectified. On these and several other Accounts the Comparison of Thermometers is very precarious; and though various Methods have been proposed by various Authors, for finding a fix'd Point, or Degree of Heat and Cold, from which to reckon the other Degrees and adjust the Scale, that so Observations made at the same or different Times, in different Places, may be compared together, the Matter seems yet undetermined.

THERMOMETERS made with Spirit of Wine do well enough to shew the comparative Heat of the Air, but are not sufficient for the Purpose of the Virtuoso, who wants to explore the vastly different Degrees of Heat in other Bodies, as boiling Oils, melted Metals, and even Fire itself; for in such Degrees of Heat the Spirit will burst the Tube, and it will freeze when the Cold is very intense, as the *French* Philosophers not long ago experienced in the *Swedish Lapland*. Linseed-Oil, which requires four times the Heat to make it boil that Water does, was used by Sir *Isaac Newton* instead of Spirit of Wine; but this being insufficient for great Degrees of Heat, and likewise fulying the Tube, it has given Way to the Mercurial Thermometer, which will sustain any Degree of Heat or Cold, as far as an Instrument of
this

this Kind can be expected to do. This Thermometer was contrived by M. *Farenheit* of *Amsterdam*, and is now come into general Use; though it is allow'd Sir *Isaac*'s was as well fitted as any for a Standard *Weather-Thermometer*, and for any Degree of Heat which the various States of the human Body exhibit; and also for those different Degrees which Vegetation requires in a Green-house, Hot-bed, &c. In all which Cases, and many others, it is necessary to have one common, unerring, and universal Measure or Standard, which at all Times, and in every Place, will shew the same Degree of Heat by the same Expansion of the Fluid.

AFTER this Account of the Inventions of the *Hollanders*, it remains to take notice of some of their Manufactures; amongst which we scarce know of any more curious and useful than that of PAPER*. This Manufacture indeed is not

* When and by whom *Linen-Paper* was invented is not known, as *Polydore Virgil* confesses. *Scaliger* ascribes the Invention to the *Germanians*, *Maffei* to the *Italians*; others to some refugee *Greeks* at *Basil*, who took the Hint from the Manner of making Cotton-Paper in their own Country; and *Conringius* thinks we receiv'd it from the *Arabs*. Be this as it will, *Linen-Paper* appears to

have been first introduced amongst us towards the Beginning of the fourteenth Century, which agrees with the Observations of Count *Maffei*, who finds no Marks of its Use before the Year 1300. Some indeed go much farther back, and take the *Libri lintei*, mention'd by *Livy* and other *Roman Writers*, to have been written on *Linen-Paper*; but this Notion has been sufficiently peculiar

peculiar to the *Dutch*, having now got footing in most Parts of *Europe*; but *France*, *Holland*, and *Genoa*, are the Places where it has best succeeded. The *English* Manufacture is every Day growing into Reputation, and we now almost rival the *Dutch* in making Paper, so that we import much less from *Holland* than formerly; and there is great Hopes, from the Improvement lately made in this Business, that we shall shortly make as good Paper at home as any Part of *Europe* can produce. The Method of manufacturing it is as follows.

THE Linen Rags (of which our *European* Paper is made) being carried to the Mill are first sorted, then wash'd very clean in Puncheons, whose Sides are grated with strong Wires, and the Bottoms bored full of Holes. After this they are fermented, that is, laid in square Heaps close cover'd with Sacking till

refuted. Others make the Invention more modern than it really is, dating its Origin about 300 Years ago; but *Mabillon* shews the contrary, from many Manuscripts about 400 Years old written on Linen-Paper; and *Balbinus* produces divers Instances of such Manuscripts written before the Year 1340. Add to this, that in the *Cotton Library* there are Writings on Paper in the

Times of most of our Kings and Queens, as high as the Year 1335; and Dr. *Prideaux* assures us, he has seen a Registration of some Acts of *John Cranden*, Prior of *Ely*, made on Paper, which bears Date in the 14th Year of King *Edward II*, that is, *A. D.* 1320. The Invention, according to the learned Doctor, seems to have been brought from the East, most of the old Manuscripts they

they sweat and rot, which is commonly done in four or five Days. When duly fermented they are twisted into Handfuls, cut small, and thrown into oval Mortars made of well-season'd Oak, about half a Yard deep, with an Iron Plate at Bottom an Inch thick, eight Inches broad, and thirty Inches long. In the Middle is a Washing-Block, with fine Holes in it, and a Piece of Hair-Sieve fasten'd on the Inside, so that nothing can pass out except dirty Water. These Mortars are continually supplied with Water by little Troughs from a Cistern fill'd by Buckets fasten'd to the Floats of the great Wheel, which raises the wooden Hammers for pounding the Rags in the Mortars. When the Rags are beaten to a certain Degree call'd the *first Stuff*, the Pulp is removed into Presses, where it is left to mellow about a Week; then

in *Arabic* and other oriental Languages being written on this Sort of Paper, some of which are certainly much older than any of the Dates above mention'd. This Author thinks it most probable, that the *Saracens* of *Spain* first brought it out of the East into that Country, from whence it was propagated through the rest of *Europe*.—As to the Time of its being introduced into *England*, we read of a Paper-Mill erected

at *Dartford* as early as the Year 1588, which was probably the first, and is celebrated by *Thomas Churchyard*, a noted Poet of that Age, in a Work in Verse, intitled, *A Description and Discourse of Paper, and the Benefits it brings; with the setting forth of a Paper-Mill built near Dartford, by a High German, call'd M. Spilman, Jeweller to the Queen.* Lond. 1588, 4to.

it is put into clean Mortars, pounded afresh, and removed into Presses or Boxes as before, in which State it is call'd the *second Stuff*. The Mass being beaten a third time, till it resembles Flour and Water without any Lumps, it is thereby fitted for the Pit-Mortar, where it is perfectly dissolved, and is then carried to the Vat to be form'd into Paper. The Vat is rightly *primed*, as they call it, when the Liquor has such a Proportion of the Pulp, as that the Mould dipp'd into it will take up just enough to make a Sheet of Paper of the Thickness required.—The Mould is a square Sieve about an Inch deep, having a Brass-Wire Bottom, resting on Sticks to prevent its bagging and keep it exactly horizontal. This Mould the Maker dips into the Liquor, and gives it a Shake as he takes it out to clear the Water from the Pulp. He then slides it along a Grove to the Coucher, who turns the Sheet, lays it on a Felt, and returns the Mould to the Maker, who by this Time has prepared a second Sheet in another Mould; and thus they proceed, laying alternately a Sheet and a Felt, till they have made six Quires of Paper, which is call'd a *Post*. This Quantity is then put under a Press, and by the Strength of four or five Men all the Water is press'd from it; after which it is separated from the Felts, laid regularly one Sheet upon another, and having undergone a second Pressing it is hung up to dry. When sufficiently dried it is taken off the Lines, rubb'd smooth

smooth with the Hands, and laid by till sized, which is the next Operation. For this they chuse a fine temperate Day, and having boil'd a proper Quantity of clean Parchment or Vellum Shavings till they come to a Size; they prepare a fine Cloth, on which they strew a due Proportion of white Vitriol and Roch-Alum finely powder'd, and strain the Size through it into a large Tub, wherein they dip as much Paper at once as they can conveniently hold, and with a quick Motion give every Sheet its Share of the Size, which must be as hot as the Hand can well bear it. After this it is press'd, hung up Sheet by Sheet to dry, and then being sorted it is told into Quires, which are folded, press'd very hard, and so tied up in Reams or Bundles for Sale.

THE Manner of making *Marbled Paper* is so curious, that an Account of it can hardly fail of being agreeable.—A Trough is provided, either made of Lead or Wood well join'd and pitch'd, of the Shape and Dimensions of the Paper to be marbled, and about four Fingers deep, which is to contain the Liquor used in the Operation. This Liquor is made by macerating a Quantity of Gum Tragacanth four or five Days in fair Water, which is to be stirr'd from time to time, and fresh Water daily added, till it be of a Consistence somewhat thinner than Oil, and then it is strain'd into the Trough for Use. The Colours to be applied on the Surface of this Liquor, (which are usually Blue,

Red, Green, and Yellow) being prepared of proper Ingredients, there is added to them a little Ox or Fish Gall; and if the Colours, when sprinkled on the Liquor, do not dilate themselves sufficiently, more Gall must be added; but if they spread too much, the Fault must be corrected by adding more of the Colour. The Colours being ranged in Gallipots on the Table where the Trough is placed, they begin by dipping a Brush of Hog's-Hair into any Colour, commonly the Blue first, and sprinkling it on the Surface of the Liquor; then the Red is applied in the like Manner, but with another Brush; afterwards the Yellow, and lastly the Green. When all the Colours are thus floating on the Liquor, they use a pointed Stick, which being drawn with Address from one Side of the Trough to the other, stirs up the Liquor and fluctuating Colours; after which they draw a Comb over the Surface of the Liquor, permitting only the Teeth to enter; and this being performed with a gentle and uniform Motion, makes those Clouds and Undulations on which the Beauty of the Paper very much depends. The Colours lying in this Posture, the Operator applies on them a Sheet of white Paper previously moisten'd, which requires a Dexterity that can only be obtain'd by Practice, the Surface of the Liquor and Paper being to meet equally in all Parts; which done, before the Colours have Time to soak through, he lifts it up nimbly, and spreads it on a Board, where

where having lain a while it is hung upon a Line to dry, and is then polish'd with a Marble-Stone or Knob of Ivory.—It must be observed, that the sprinkling of the Colours is to be renewed, and the other Operations to be perform'd with the Stick and Comb, at every Application of a fresh Sheet of Paper, because each Sheet takes off all the Colours from the Liquor.

THE City of *Delft* is famous for its Manufacture of fine Earthen-Ware, which has of late Years been well imitated and perhaps equal'd both by the *French* and *English*. Its Beauty consists, not only in the Whiteness of the Glazing, but in the lively Colours and pretty Designs with which they are painted, whether Landscapes, Birds, Flowers, or other Ornaments. The white Glazing is prepared of Lead, Tin, Flint, and Salt, which are first calcined, and then melted together into a Cake; after which they are ground very fine, and temper'd with Water, so as to make them fit to be laid on the Work. The blue Painting is done with Zaffre, which is brought from *Saxony*, where it is produced from a Mineral call'd Cobalt; of which likewise is made the blue Smalt used by Painters, and several Sorts of Arsenic or Ratsbane.

THE Woollen and Linen Manufactures were introduced into *Holland* by the Persecutions rais'd in the *Netherlands* against the Protestants in the Reign of *Philip* the Second: And the

Wars between the *French* and the *Dutch* obliged the latter to apply themselves to the making of Velvets, Brocades, Ribbands, Lace, Paper, &c. which they used to import from *France*. But nothing contributed more to bring these Manufactures to a good Degree of Perfection in the *United Provinces*, than the Number of *French* Refugees, who fled from the Persecution raised against those of the Reform'd Religion in *France*, and were kindly receiv'd by the *Dutch*, as well as here in *England*.—The Woollen Manufacture flourishes most at *Leyden*, where they make Broad and Narrow Cloths, Serges, Camblets, Druggets, &c. but inferior to those of *Britain*, which they purchase to export to other Nations.—At *Haerlem* they make the finest Linen, and give it so beautiful a White, that Linens are brought from the rest of the Provinces, and even from *Germany* and other Countries, to be bleached there, for which the Waters have a particular Quality. In that City they also manufacture fine Silks, flower'd Velvets, Gold and Silver Brocades, and other rich Stuffs; which though inferior in Goodness to those of *France* and *Italy*, yet being cheaper find a quicker Market.—At *Amsterdam* a great many Hands are employ'd in all Kinds of Tapestry; and the Number of Mills in that City and its Neighbourhood is surprizing, some for sawing Wood of all Sorts, others to work and polish Marble; some to make Gunpowder, others for grinding Snuff, drawing Oil from Seed,

Seed, and for various other Purposes. In short, one may apply to *Amsterdam* what *Vopiscus* said of *Alexandria* in *Egypt*, that *all its Inhabitants are in some Business, the Lame and the Blind have their Employment, and even those who have the Gout in their Hands are not permitted to be idle.*

OUR Design does not require us to give an Account of the foreign Commerce of this opulent Republick, which indeed is a Subject that would afford Matter for several large Volumes; and therefore we shall only just mention a few Particulars.—The vast Profit arising to the *Dutch* from the *Herring-Fishery* may be guess'd at from what we have already said concerning it towards the Beginning of this Work*; and as to the *Whale-Fishery*, they have been almost in the sole Possession of it for upwards of a hundred Years, and it may at present be esteem'd one of the principal Branches of their flourishing Trade, as it annually employs near two hundred Ships, from 250 to 400 Tons. In their Trade to the *Baltic* it is computed the *Dutch* employ a thousand more Ships than the *English*; but this is balanced by the Number of Ships we send to our Plantations in *America*, in which Part of the World their Commerce is not so considerable as formerly, their *West India* Company being much decay'd, Their *East-India* Company carries on a very advantageous and extensive Commerce; and their Trade to

* See Vol. I. p. 119.

the *Levant* is not inconsiderable, though in this Branch the *English* have undoubtedly the Superiority. We need say nothing of their Commerce with *France, Spain, Portugal, Great Britain, and Ireland*; for, in a Word, the *Dutch* manage a prodigious Trade in most of the known Parts of the World, and are so industrious and numerous, that *Holland* may properly be compared to a large Bee-hive, the Multitude of Ships continually going in and out representing in a lively Manner the Swarm of Bees, which bring into their Ports the richest and best Commodities of all Nations.

C H A P. VII.

Of DENMARK and NORWAY.

WHIRLPOOLS, SPRINGS, VOLCANO'S, &c.

FROM the *United Provinces* we now proceed to take a View of what is most remarkable in the Northern Parts of *Europe*, beginning with the Kingdoms of *Denmark* and *Norway*, and the Islands thereunto belonging. —Near the Coast of *Norway*, (in about Latitude 68) it is said there is a vast *Whirlpool*, commonly call'd *Maelstrom*, and by Mariners the
Navel

Navel of the Sea, which proves fatal to Ships that approach too near it during the Time of Flood; for then the Sea, upwards of two Leagues round, forms such a terrible Vortex, that the Indraght of the Water and the Noise of the Waves are not easy to be described or imagined; and during the Ebb the Water is thrown out with such Violence, that the heaviest Bodies cast into it cannot sink to the Bottom, but are toss'd up to the Surface with great Impetuosity. Vessels swallow'd by this Whirlpool are cast up again shatter'd to pieces, being dash'd against the Rocks within it; but there is an Interval between Flood and Ebb, during which the Water is so still, that Ships may sail over it without Danger.—We are apt to think, however, that some Accounts of this Whirlpool are too much mix'd with Fable; especially as we are told by *Francis Neri*, an *Italian*, who travell'd into *Norway*, that what is represented as a Whirlpool is only a rapid Current, which makes a great Noise during the six Hours of Flood, occasion'd by the Water's dashing violently against several small Islands or Rocks, which repel the Stream different Ways, and sometimes give it a whirling Motion; but that during the Time of Ebb, small Boats may pass safely from one Island to another.

THE Account we have of the Whirlpool about the Islands of *Ferro* or *Farro*, which belong to the Crown of *Denmark*, seems better attested, being given us by Mr. *Jacobson Debes*,
Provost

Provost of the Churches in those Islands. The most dangerous is that which lies South of *Sunderoe*, near a Rock call'd the *Monk*, where several Vessels have been swallow'd up. The Sea round this Whirlpool is eighty or ninety Fathoms deep, and the Surface of the Water is smooth and still; but a little farther in, the Ground lies at the Depth of twenty-five or thirty Fathoms, where the Sea begins to rise and turn round. Within this the Ground lies from eight to ten or twelve Fathoms deep, in four Circles; and this high Ground rises up in Points or Clifts, which are about eight Fathoms under Water, and about twelve distant from each other. Between these Circles are three Channels from twenty-five to thirty Fathoms deep, wherein the Sea runs round; and within all the Circles there is a Hole, the Depth of which in the Middle is above sixty Fathoms. The innermost Current turns round but slowly, but the others with great Swiftnes. On the South Side of this Hole the Rock call'd the *Monk* rises ten Fathoms above Water, and North of this there are six lesser Rocks, on the Top of which (our Author observes) the Compass runs round like the Whirlpool.—Considering the Danger that Vessels run by approaching this Vortex, the Reader perhaps may wonder how so particular a Description of it could be taken; but our Author informs us, that in very calm Weather, during the Reflux of the Sea, the Inhabitants

bitants venture to fish there, and to climb the Rocks.

IN *Iceland*, a large Island in the Northern Ocean subject to *Denmark*, there are many remarkable Springs, some of them so hot as to scald the Hand, or even to boil a Piece of Beef (according to Dr. *Biornoni*) in a Quarter of an Hour; and about the Brims of the Springs these Waters harden and petrify. *Blefkenius* relates, that in the Western Part of the Island there is a Lake which smoaks continually, and is of a petrifying Quality; so that if a Piece of Wood be stuck into it, the Part under Water becomes stony, and that in the Ground turns to Iron. This, he tells us, he twice experienced; but adds, that what seem'd to be Iron, being thrown into the Fire, burnt like Charcoal. He also mentions another Lake in the Middle of the Island, which exhales so poisonous a Vapour as to kill Birds that fly near its Surface. The same Author takes notice of two Springs, the one hot, the other cold, the Waters whereof form an excellent Bath, being convey'd by different Channels into one and the same Basin: And near these Springs there is another, the Water of which tastes like Wheat, and is excellent against the Venereal Distemper.

IN the South-East Part of this Island, not far from the Sea, is a noted Volcano, or burning Mountain, call'd *Hecla*, which not only sends forth Flames, but Streams of sulphureous Water that burns like Spirit of Wine. It also
throws

throws up black Ashes, and a vast Quantity of Pumice-Stones. These Eruptions seldom or never happen when the Wind is at West, so that the Natives, who are acquainted with the Way, can then go up to the very Top of the Mountain, from whence the Flames proceed; but this is attended with some Danger, especially to those who do not thoroughly know the Road; for it is said the Earth, being undermined by the Fire, sometimes falls in, and swallows up the unwary Traveller.—There are other Volcano's in *Iceland* besides Mount *Hecla*, but all cover'd with Snow.

Fossils.

DENMARK and *Norway* afford some Mines of Iron and other Metals, but we scarce know of any thing under this Article so curious as to merit a Description, except it be *Island Crystal*, so call'd as being found in *Iceland* in great Abundance. This is a pellucid fissile Stone, chiefly dug out of the Mountains of *Iceland**, though likewise to be met with in

* *Erasmus Bartholine* informs us, that this Kind of Crystal is found in several Parts of *Iceland*, but is chiefly dug out of a very high Mountain, not far from the Bay of *Roe-ford*, in 65 Degrees of Latitude, all whose

Outside consists of this Substance. It is cut (he says) by Iron Tools into Pieces of a cubic Foot; and in some of its Corners is found a harder Matter, proper for cutting Glass, and resembling the Figure of a Diamond.

France

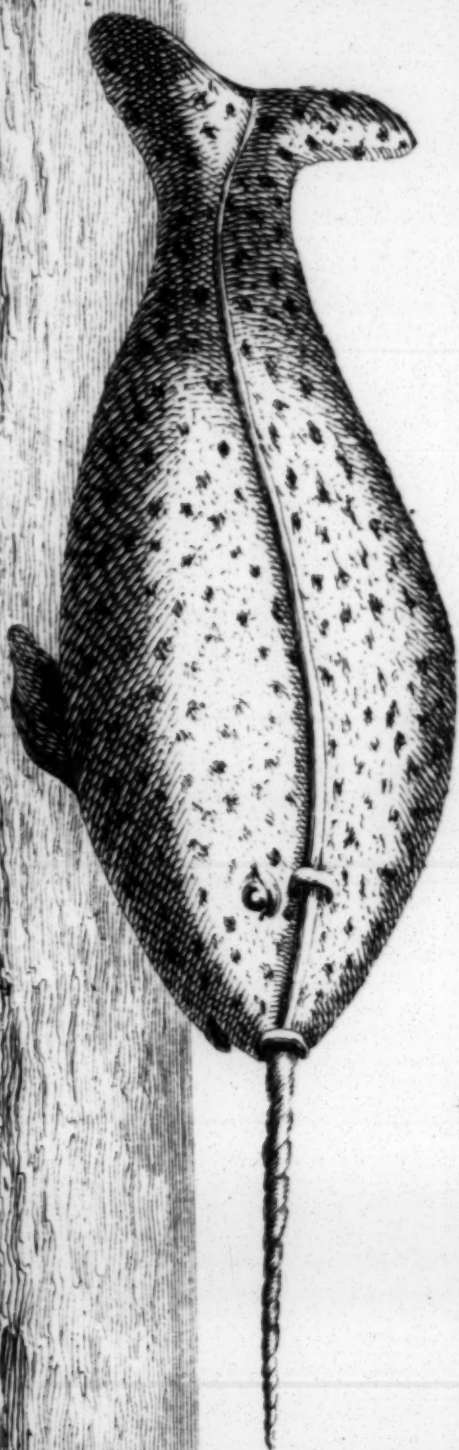
France and Germany. Its Form is very regular, being always an oblique Parallelopiped composed of six Planes; but its Sizes are various, from a Quarter of an Inch to three Inches in Diameter, though its most usual Standard is about two Inches and a half. It is usually found in single Masses, except in *Iceland*, where it is sometimes found in complex Masses of a great Breadth; but these are evidently made up of a Number of the perfect single Specimens, placed Side by Side in a beautiful and orderly Arrangement. This Stone has a singular Property, of splitting with the same Ease either horizontally or perpendicularly, which is owing to the regular Figure, the smooth Surface, and nice joining of the several small Concretions of which it is composed. Writers on Optics have taken much Notice of this Stone, and its usual Phænomena have been accurately examined by *Erasmus Bartholin*, *Huygens*, and *Sir Isaac Newton*; but neither its Nature nor Texture seems to have been perfectly understood, most Writers having accounted it a Crystal, and *Sir Isaac* a Species of Talc; whereas in reality it is a true and genuine Spar, though in Brightness it does not fall much short of the purest Crystal, being perfectly clear, and very seldom blemish'd with Flaws or Spots, or stain'd with

He adds that it is electrical, attracting Straws, Feathers, &c. when heated by rubbing; but it is not so hard as to bear polishing.—See more in *Phil. Trans.* N^o. 67.

any other Colour. The remarkable Property of this Body, for which it is so famous amongst Opticians, is its *double Refraction*; so that if it be laid over a black Line drawn on a Piece of Paper, the Line appears through it double, or two Lines appear instead of one, both of the same Strength of Colour and Thickness, and running parallel to one another at a small Distance. This Effect is best seen through the plain horizontal Surfaces of the Stone, and there are some Angles in which it is not produced. If a Ray of Light fall on this Stone either perpendicularly or obliquely, it is divided into two by means of the same double Refraction; and the like is observed in Rock-Crystal, though in a less sensible Degree.

THE same Kind of Stone is found in the Isles of *Ferro*, where they have likewise some Talc, and two Sorts of Salt-petre, but in no great Quantity. On the Sea-Shore they likewise find a Sort of transparent Stones, so hard that one may write with them upon Glass. Some are white with a small Mixture of blue, others yellow, and so well polish'd that they serve to put in Rings. They grow in the Cliffs of the Rocks, from whence they are wash'd by the Waves; but they are not much esteem'd, and are said to lose their Colour when transported.

The Narval





ANIMALS.

IN the *Norwegian* and other Northern Seas there is frequently caught a large Fish call'd a *Narval* or *Sea-Unicorn*, remarkable for its long Tooth or Horn, which very much resembles Ivory, but is generally more solid and ponderous. This Fish is smooth like an Eel, its Colour white sprinkled with black Spots, and its Eyes about the Bigness of a Sixpence. It has two fleshy Fins, and a semicircular Hole on the Top of its Head, from whence it spouts Water like a Whale, and (as some say) discharges its Excrements. The Horn or Tooth of this Animal grows strait forwards from the Middle of its upper Jaw, and is curiously wreath'd and terminates in a Point. With this strong Weapon it dares attack the largest Whale, and can strike with such Violence as to pierce the Side of a Ship. Some imagine the chief Use of this prominent Tooth is to break the Ice, but it seems rather design'd for the Defence of the Animal, and to enable it to procure its Food; for we are credibly inform'd of a Whale caught on the Coast of *Greenland*, into the Belly of which a *Narval* had stuck his Tooth up to the Mouth, and was sucking the Blood and Humours.—What usually passes amongst us for *Unicorn's Horn*, and is shewn for such in the Collections of Curiosities, is

G 2

probably

probably nothing else but the Tooth of the Narval*.

ABOUT the Isles of *Ferro*, according to Mr. *Jacobson Debes*, there are great Numbers of *Seals* or *Sea-Calves*, of different Sizes, some being as big as Cows, and others not larger than a Calf. This Animal is amphibious, living either on Land or in the Water; and has four Feet, the Extremities whereof are like Fins. They frequently sleep on the Rocks by the Sea-side, having always one upon the Watch to alarm the rest in case of Danger. In *September*, when they bring forth their Young, they retire into Caves under the Rocks, into which the Natives row their Boats, and kill Multitudes of them with Staves, not without some Danger from the Old ones, as well as from the Waves. The Islanders sometimes shoot them, and sometimes take them with Nets and Dogs, which being train'd to the Sport will swim to

* In the Year 1736 a Fish of this Kind was taken in a Creek of the *Elbe* in the Dutchy of *Bremen*, about four Miles from the Sea, whose Horn was six Feet three Inches long; and the Fish itself, from the Root of the Horn to the Extremity of the Tail, was seventeen Feet six Inches. — A fine Horn of this Sort is pre-

served in the Repository of *St. Denis* at *Paris*, given by *And. Thewet*, and pretended to have been a Present made to him by the King of *Monomotapa*, who carried him to hunt the Unicorn. At *Strasburg* there is one above seven Feet long; and at *Venice* there are several, all different from each other.

them

them against the Wind, that the Seals may not smell them, and catching them fast by the Throat, hold them till their Masters come up to their Assistance.—The Flesh of the Seal is strong and but indifferent Food, though the Natives salt up Part of it with the Ashes of Sea-Weed, and melt the rest for Oil; and of their Skins they make Shoes and other wearing Apparel.

IN the same Seas there are several Sorts of Whales, particularly one call'd the *Grind-Whale*, the largest whereof are about five Yards long, and come in great Numbers under the Land when the Weather is dark or foggy. When any Fishermen see them, they make Signs to all the other Boats, and thus getting together they drive the Fish into a Creek or Inlet, where they kill them with Spears made for that Purpose. The Boats divide themselves into two Squadrons, one of which attacks the Whales, and the other draws up in the Form of a Half-Moon to prevent their getting out of the Creek; but in the Skirmish the Boats are sometimes overturn'd, the Men drown'd, and the Fish make their Escape. Part of the Fat of these Whales they use instead of Butter, some they melt into Oil, and the rest of the Fish they salt in the same Manner as the Seals, which makes their Flesh pretty much resemble Bacon.—Sometimes these Fish are brought in with the Tide, and run upon the Shore in a dark

Night, where the People find them in the Morning.

THERE is another Sort of Whales call'd *Dogfins*, about eight Yards long, which come every Year to a Bay in the Island of *Suderoe*, where the Inhabitants drive them into an Inlet, and kill them with Spears. They are not so good Meat as the former; for if a Person eats their Fat, it penetrates through the Pores of his Skin, and makes him smell strong and look yellow.

MISCELLANEOUS CURIOSITIES.

WITHIN a few Miles of *Sleswick* are still to be seen, in several Places, the Ruins of a famous Wall which was built by the *Danes* to prevent the Incursions of the *Saxons*. It is thought to have been begun by *Gothofred*, King of *Denmark*, about the Year 808, and to have been afterwards improved by Queen *Thyra* and other *Danish* Monarchs. This Rampart was call'd *Danewark*, and, like the *Picts Wall* in *England*, is reported to have reached from Sea to Sea, quite cross that Part of *Jutland*.

AT *Hollen* in *Norway*, about fifteen Miles from *Tonsberg*, there is a remarkable Church, which is cut out of a Rock, and has a Burying-Place on the Top of it. It is undoubtedly very ancient, and perhaps, as *Olaus Wormius* supposes, was originally a Heathen Temple.

THE Royal Museum at *Copenhagen* contains such a noble Collection of Curiosities, both natural and artificial, that we apprehend a short Account of them will afford the Reader an agreeable Entertainment. Dr. *Oliver* informs us, that this fine Collection is preserved in eight Chambers built over the Royal Library, which is large and well furnish'd. One of these Rooms is wholly taken up with Medals, antique and modern, each Sort being kept by themselves, and very judiciously arranged; and in a separate Case are contain'd the *Paduans** and other counterfeit Medals, which in Workmanship so nearly resemble the true *Grecian* and *Roman* Antiques, that a good Judge can scarce distinguish them from Originals. The Series of the modern Medals of *European* Nations are absolutely compleat, and those of each Nation kept distinctly.

AMONGST the natural Curiosities preserv'd in these Chambers, one of the most remark-

* A *Paduan*, among Medallists, is a modern Medal struck with all the Marks and Characters of Antiquity. The Name is taken from a famous *Italian* Painter, call'd the *Paduan*, from *Padua* the Place of his Birth, who succeeded so well in the Cheat, that the best Judges are at a Loss to distinguish his Me-

dals from those which are really antique. His Son *Ottavian*, though born at *Rome*, was also call'd the *Paduan*. — *Laurentius Parmesanus* and *Bellus Vicentinus* in *Italy*, and *Carteron* in *Holland*, had likewise the Art of imitating antique Medals in great Perfection.

able is a *petrified Child*, the History whereof has been given us at large by *Bartholine*, *Licetus*, and other Authors. This Child was cut out of the Mother's Belly at *Sens* in *Champagne*, in the Year 1582, after having lain there between twenty and thirty Years; and that it is a human *Fœtus*, and not artificial, is evident beyond all Dispute. Its Head, Shoulders, and Belly, are of a whitish Colour, and very much resemble Alabaster; the Back and Loins are somewhat brown and harder; but from the Hips downwards it is of a red Colour, and as hard and perfect Stone as can be, exactly resembling the hard Sort of Stones generated in the Bladder. This *Fœtus*, after it was taken from the Mother, was first carried to *Paris*, where it was sold to a Jeweller of *Venice*, who happen'd to be there, for about twenty Pounds Sterling; of whom it was afterwards purchased by *Frederick III.* King of *Denmark*, for sixty Pounds, and added to this Collection.

In one of the Chambers are to be seen two *Elephant's Teeth*, each weighing a hundred and fifty Pounds, which were dug out of a Stone-Quarry in *Saxony*.—Here is also an Egg laid by a Woman, about the Size of a common Puller's Egg, which *Olaus Wormius* tells us was sent him by very good Hands, and the Truth of the Fact confirm'd by People of Credit. The Woman, he says, brought forth two Eggs, with the usual Child-birth Pains; but the Neighbours, who were call'd in to her Assistance,

Assistance, broke the first, wherein they found a Yolk and a White, as in that of a Hen*.—We likewise see here an *Unicorn's Horn*, as it is call'd, white as Ivory, and spirally twisted.

* As strange as this may seem to those who are unacquainted with the Animal Oeconomy, we have abundant Testimonies to confirm the Truth of such Productions; and indeed the Generation of all Sorts of Animals *ab ovo*, from Eggs, is strenuously asserted by *Harvey*, *de Graaf*, and other great Anatomists. *M. Olivier*, a Physician at *Brest* in *France*, attests, that in the Year 1684, a Woman who had been pregnant seven Months was brought to Bed of a whole Plate full of Eggs, fasten'd together like a Bunch of Grapes, and of various Sizes, from that of a Lentil to that of a Pigeon's Egg. *Bonetus*, in a Letter to *Zuingerus*, mentions a young Maid who had brought forth a great Number of little Eggs; and *Virdungius* relates, that in dissecting a Woman who had a Rupture, he found Eggs of divers Sizes in the *Cornua* of the Womb. We meet with several Instances of the same Thing

in *Rhodius*, and in the Memoirs of the *Curiosi Naturæ*; insomuch that *Berger* in his Treatise *de Natura humana*, gives it as his Opinion, that the only Difference between *oviparous* and *viviparous* Animals consists in this, that the former cast their Eggs out of the Body, and lay them in Nests, and that their Eggs contain all the Nourishment requisite for the *Fœtus*; whereas in the latter the Eggs are only detached from the Ovary into the *Uterus*, and have but little Juice, the rest being furnish'd by the Mother.—On the other hand, we have Instances of a Crow, a Hen, and other *oviparous* Animals, producing their Young alive and without Eggs: Nor is this all, for Naturalists tell us of Males, and even of Men, that have voided Eggs by the Fundament; but we shall not tire the Reader with Accounts of this Kind, which perhaps he may look upon as nothing but Fiction.

This,

This, however, is not the Horn of any Land-Animal, but belongs to a Kind of Whale call'd a *Narval*, of which we have just given a Description.

IN this fine Collection there are several large Pieces of Silver Ore, dug out of the Mines of *Norway* in 1666, one of which weighs five hundred and sixty Pounds, and is valued at five thousand Crowns. Another Piece, somewhat less, is valued at more than three thousand; both being so rich, that they are reckon'd to contain at least three Parts Silver. They are composed of a whitish Stone, the Cracks or Cavities whereof seem to be fill'd with pure Virgin-Silver, which in some Places lies in broad flat Plates, and in others like Pieces of fine Silver-Lace: But what is most admired in these Pieces of Ore are the Threads or Branches of Silver which shoot out an Inch or two beyond the Surface of the Stone, appearing in the Form of small Shrubs or Bushes; and several other Ramifications of this Kind are to be seen among the Silver-Ores preserv'd in this *Museum*.

HERE we also find several large Pieces of *Amber*, some weighing forty or fifty Ounces; which, upon opening the Ditches about *Copenhagen*, when they fortified the City, were, found sticking to the Sides of old Trees that were buried there, like the Gum on the Plum-trees in our Gardens—In the same Chamber are a great many large Branches of white and red
Coral,

Coral, and one of black; likewise a Pair of *Stag's-Horns* growing out of a Piece of Wood in a surprizing Manner.—Here is human *Thighbone*, three Feet three Inches long, as measured by Dr. *Oliver* himself*; and two very large *Scollop Shells*, holding about three Gallons each, and weighing 224 Pounds a piece. These were brought from the *East Indies*; and it is said the Fish they belong to is of such Strength, that if a Man happens to get his Arm or Leg be-

* Whether the Bone here mention'd did really belong to some human Body of a gigantic Stature, or to some Elephant or other large Animal, we shall not pretend to determine: But Sir *Hans Sloane* observes in the *Philosophical Transactions* (N^o 404.) that several of those Bones and Teeth, which are kept and shewn about for the Bones and Teeth of Giants, have been found, upon accurate Inspection, to have belonged to Elephants or Whales; from whence he infers, that others also, which for want of a sufficient Description cannot be so well accounted for, must probably have belonged to some of those large Creatures. The pretended Skeletons of Giants, which have been dug

up from time to time, Sir *Hans* likewise takes to be the Skeletons of Elephants or other huge Animals, as several of them have actually proved to be upon Examination. Of this Kind was the large Skeleton found near *Trapani* in *Sicily*, two others near *Tunis* in *Africa*, another near *Krems* in *Austria*, and many more that might be mention'd; for as to *Strabo's* Skeleton of a Giant sixty Cubits high, and that of *Pliny* forty-six Cubits, they are undoubtedly fabulous. — Dr. *Molyneux* (*Phil. Transf.* N^o 260) describing a large *Os Frontis* of a Man preserved in the Anatomical School at *Leyden*, argues strenuously for the Existence of Giants; for as there have been Dwarfs in

tween

tween the Shells when they are open, it claps them together so forcibly as to cut the Limb clear off.

A PIECE of Marble is preserved in this Collection, which the *Lutherans* reckon a very valuable Curiosity, the natural Veins of the Stone running in such a Manner as to represent the exact Figure of a Crucifix. Some indeed have suspected the Representation to have been by Art; but upon the nicest Exa-

all Ages and Countries, which have fallen short even of half the common Stature of Mankind, some being not thirty Inches in Height, the Doctor thinks it not unreasonable to imagine that Nature may sometimes act in the contrary Extreme. Indeed, we have clear Testimonies (says he) given us by Authors of unquestionable Credit and Veracity, that there actually have been Men in the World, and it is likely still are, of such a Bulk and Stature as properly to deserve the Name of Giants. *Edmund Mallone*, when his Shoes were off, measur'd full seven Feet seven Inches in Height; and *Walter Parsons*, Porter to King *James* the First, was much of the same Stature. *Diemberbroeck*

tells us he saw at *Utrecht* a Man eight Feet and a half high; *Becanus* saw a Man near ten Feet, and a Woman that was full ten Feet in Height; and *Thevet* says he was shewn by a *Spanish* Merchant the Skull and Bones of an *American* Giant, whose Height was eleven Feet five Inches.—*Dr. Derham* is of Opinion, that though we read of Giants before the Flood, and more plainly after it, yet the common Size of Man was always the same from the Creation, the Giants spoken of in Scripture being mention'd as Rarities and Wonders of the Age, and not of the common Stature. Instances of this Kind we have had in all Ages, besides many fabulous Relations, such as
mination

mination it appears to be entirely the Work of Nature*.—Having given a sufficient Specimen

we suppose that of *Theutobochus* to be, who is said to have been dug up in 1613, and to have been twenty-six Feet high; and the still the more extravagant Accounts of Giants given us by *Olaus Magnus*. As for the Instance of *Goliath*, whose Height was six Cubits and a Span, 1 Sam. xvii. 4. (which according to Bishop *Cumberland* is somewhat more than eleven English Feet) of *Maximinus* the Emperor, who was nine Feet high, and several others about the same Height; these are all to be match'd, and even outdone, by modern Examples, given us by *Ludolphus*, *Magius*, *Conringius*, *Hakewill*, and other Authors; which last, from *Nannex*, speaks of Porters and Archers to the Emperor of *China* fifteen Feet high, and brings Instances from *Purchas* of Persons ten or twelve Feet high, and some exceeding that Stature. But, as above observ'd, it is probable the ordinary Size of Mankind was ever the same; which seems confirm'd by Monuments, Mummies, and

all other Evidences of Antiquity now remaining.

* Representations of this Kind by the Veins of Stones, and perhaps with the Help of a strong Imagination, are frequently to be met with, particularly in the *Florentine* Marble, wherein various Figures, especially the Ruins of old Buildings, appear in a very natural Manner. A remarkable Instance of this Nature is to be seen in an *Egyptian* Pebble, now in the Collection of Sir *Hans Sloane*; from one End of which a Lapidary having struck off a small Piece, observ'd to his great Surprise, that the Course of the Veins represented a human Face, and not only so, but the Face of a particular Person. The Lineaments (it seems) are exactly those of our old Poet *Chaucer*, according to all the Paintings we have of him; and this has so little of Fancy in it, that every one who sees the Stone, if he ever before saw a Picture of *Chaucer*, must remember the Likeness.

of the natural Rarities, let us now take a View of those which are artificial.

AMONGST these there is a *Skeleton* made of Ivory, two Feet six Inches high, in Imitation of a human one; and it is so nicely form'd and put together, that one might easily take it for a natural Skeleton.—There are likewise two *Crucifixes* of Ivory, and the whole History of our Saviour's Passion beautifully express'd in a Piece of Carv'd Work.—A small *Man of War* in Ivory, with Silver-Guns, is a Curiosity much admired; as is also a *Watch* made of Ivory, with all its Wheels and Movements.—Besides these there are many other Curiosities in Ivory, Ebony, Box, Amber, and other Materials, which are kept for the sake of the elegant Workmanship: And we are told there is a common *Cherry-stone*, on the Surface of which are engraven two hundred and twenty Heads, but their Smallness makes them appear imperfect and confused*.

IN this Royal Repository we find six golden *sepulchral Urns*, which were discover'd in the

* Dr. Oliver tells us he did not see the Cherry-stone here spoken of, but says that in *Holland* an *English Gentleman* once shew'd him a Cherry-stone with a hundred and twenty-four Heads upon it, and all so perfect, that the naked Eye might distin-

guish those of Kings, Popes, Cardinals, &c. by their Crowns and Mitres. This Curiosity was bought in *Prussia* for three hundred Pounds, and is said to have been the Workmanship of a poor Wretch in Prison at *Dantzick*.

Island

Island of *Funen* in 1685, by a Peasant, as he was ploughing his Land, and contain'd each of them some Ashes of a greyish Colour. The largest of them weighs two Ounces and a half, and the others two Ounces and a Dram. They are very thin, and each has three Rings of Gold about its Neck, with several Circles carv'd upon the Outside of the Urn, having one common Center. This Discovery confirms the Account given us by *Olaus Wormius* and other Writers, that it was an ancient Custom among the Northern Nations to burn their Dead, and then bury their collected Ashes in golden Urns.—There is another sepulchral Urn of Crystal, of a conical Figure, which has also a Gold Ring about it, and was found near *Bergen* in *Norway*.—There are likewise in this Collection several Vessels of different Sizes, some of Glass and others of Earth, which are call'd *Lachrymal Urns*, or *Lachrymatories*, being used by the ancient *Romans* to catch the Tears of weeping Friends, which were afterwards mix'd with the Ashes of the Deceased.

WE shall conclude our Account of this celebrated *Museum* with a Description of the *Danish* and *Oldenburg* Horns, two Curiosities which are much admir'd. The *Danish* Horn is of pure Gold, weighs a hundred and two Ounces and a half, is two Feet nine Inches long, and holds about two Quarts of Wine Measure. This Horn was accidentally discover'd in the Year 1639, by a Country Girl, in the Diocese of

Ripen in *Jutland*; and is undoubtedly a Piece of great Antiquity, by the Figures carv'd on the Outside, which seem to be Hieroglyphics, Devils, Hobgoblins, &c. Perhaps some of these Figures were design'd to represent their Deities, and the Horn was probably used in Sacrifices, as among the ancient *Assyrians* and other Nations, who upon such Solemnities made a great Noise with Horns and Trumpets, and used them to drink out of at their solemn Entertainments.—The *Oldenburg* Horn is of pure Silver gilt with Gold, weighs about four Pounds, and is curiously enamell'd with green and purple Colours. The *Danish* Antiquaries tell many fabulous Stories of this Horn, which are not worth repeating; and as to what they say of its being given to *Otbo*, Earl of *Oldenburg* in the Year 989, it is plain it cannot be of that Date, for the Figures and Characters on the Outside are modern; which however, with the Enamelling and other Ornaments, are of excellent Workmanship, and make it a very fine and valuable Curiosity.

BUILDINGS.

SEVERAL of the Cities of *Denmark* and *Norway*, particularly *Copenhagen*, are adorn'd with handsome Churches, some of *Gothic* and others of modern Architecture; but none of them are so extraordinary as to require a Description,

scription.—The Cathedral of *Roschild*, once the Capital of *Denmark* and a Bishop's See, is an old but stately Structure, chiefly noted for being the Burial-Place of the Royal Family. Here are the Tombs of many of the *Danish* Kings, some of which are very magnificent; and over the Altar is a fine Piece of gilded Carv'd-Work, representing the History of our Saviour's Passion.—The Cathedral of *Ripen* is a noble Pile, built with Free-stone and cover'd with Lead, and has a lofty square Steeple. The Marble Columns which support its Roof, and some Royal Tombs, are its principal Ornaments.—We shall only mention one Church more, *viz.* the Cathedral of *Aarhus*, which is of curious Architecture, and adorn'd with many fine Monuments of Prelates, Noblemen, and other Persons of Distinction.

As to the Palaces of the King of *Denmark*, that at *Copenhagen*, having been destroy'd by Fire in 1728, has been rebuilt in a magnificent Manner: But the Palace of *Fredericksburg* is the most beautiful and delightful of any belonging to that Monarch, and may be reckon'd the *Versailles* of *Denmark*. The Palace stands on an Island in the Middle of a little Lake, and was formerly a Seat belonging to a private Gentleman; but King *Frederick II.*, being charm'd with its Situation, bought it and began to enlarge it, and it was finish'd by his Son *Christian the Fourth*. The Building stands on Piles, consisting of a very majestic Front and two large

Wings, which contain several grand Apartments. The Gallery that leads to the Hall of Audience is fill'd with a fine Collection of Paintings, most of them brought from *Italy*; and the Hall is adorn'd with Pictures of several of the *Danish* Kings, and of the present Royal Family, as large as the Life. The Exploits of some of these Monarchs are also beautifully painted in different Parts of the Palace, and the great Actions of *Christian IV.* are represented in rich Tapestry. The Chapel is cover'd with gilt Copper, and the Inside is embellish'd with Paintings and other Ornaments, amongst which are the Statues of the twelve Apostles in Silver; and it is said the Locks, Bolts, &c. were all of Silver, before it was plunder'd by the *Swedes*. There is a fine Garden behind the Palace, and in the Lake they have rais'd a Sort of Terrace on Piles, which cost a hundred thousand Crowns. The neighbouring Park is about nine Miles long, agreeably interspersed with Canals and Fishponds, and well stock'd with Fallow-Deer from *England*.

THE Castle of *Gottorp*, belonging to the Duke of *Holstein*, is at the same time a Fortrefs, and one of the noblest Palaces in these Northern Countries. It stands to the West of the River *Sley*, in the Middle of a small Lake, and is built in the Form of an oblong Square, and fortified with four Bastions of Earth. A Rampart encompasses the first Court, and the Gate of the Castle is of a fine blue Stone as hard as Marble.

Marble. On the North Side of the Castle there is a Bridge over the Lake two hundred Paces in Length, and at the End of the Bridge a fine Walk between Rows of Trees leads to the Garden, which is adorn'd with Cascades, Fountains, and other Water-Works. In particular there is a large Bason or Fish-pond, with pleasant Arbours on the Sides of it, and in the Middle is a Statue of *Hercules* combating the Hydra, whose Heads spout out Water. On the North there is a Parterre in Form of a Crescent, divided into Compartments, and embellish'd with the Busts of several Kings and Princes. But one of the most curious Ornaments of these Gardens is a fine Globe of Copper, ten Feet and a half in Diameter, with a Sphere, exhibiting the Motion of the Sun and heavenly Bodies, which are carried round in exact Order by means of certain Wheels turn'd by Water. Before the House there is a level Piece of Ground, about a hundred and fifty Paces long, which is divided into three Parts, those on the Sides being two fine Parterres, and that in the Middle having a large Bason in the Center with beautiful Water-Works. From hence we ascend to different Terraces, one above another, set round with Statues, Busts, and other Ornaments. The highest Terrace exhibits a most delightful Prospect, having the Castle in the Front, surrounded with a Lake, (as we observed above) and a charming Country which Way soever we turn our Eye. On the Left
there

there is a noble Orangery or Green-House ; and the neighbouring Park, which is four or five *English* Miles in Circumference, is full of Deer, and in all Respects one of the pleasantest imaginable.

HERE we cannot forbear mentioning a very famous Structure, though long ago demolish'd, which was built in the little Island of *Huen* or *Ween*, lying in the *Sound* about half a League from the Coast of *Schonen*, by that celebrated *Danish* Astronomer *Tycho Brahe*. This Island was given him by King *Frederick* the Second, whose Generosity likewise supplied him with Money to erect an Edifice in the Middle of it, and to furnish it with all proper Instruments for observing the Course and Motions of the heavenly Bodies. Accordingly, about the Year 1570, that noble *Dane* laid the Foundation of a magnificent Castle, which he call'd *Uraniburg*, (or the *City of the Heavens*) and in a few Years the Structure was compleated, wherein every thing was so well contrived both for Pleasure and Convenience, and the Instruments so excellent for making astronomical Observations, that it was look'd upon as the finest Observatory in the World*. Here *Tycho* compos'd his

* The most celebrated Order of King *Charles* II. Observatories at present are at the Solicitation of Sir *Jonas Moor* and Sir *Christopher Wren*, and the latter by those of *Greenwich* and *Paris*, both of Royal Foundation, *Louis* XIV, and both fur-

Catalogue of Stars*; but by the Fate of War between *Sweden* and *Denmark*, sometimes the one and sometimes the other being Masters of the Island, this famed Observatory did not subsist above twenty Years, and there are now scarce any Footsteps of it remaining, the Ruins having been dispersed into divers Places, though Part of them served afterwards to build *Tycho* a handsome Seat upon his ancient Estate, which to this Day retains the Name of *Uraniburg*.

nish'd with the most accurate Instruments. — Father *Le Comte* gives an Account of a magnificent Observatory erected in *China* by the late Emperor at the Request of some *Jesuit* Missionaries, especially Father *Verbieft*, whom he made his chief Observer. The Instruments (he says) are very large, but the Divisions less accurate, and the Contrivance in some Respects less commodious than those of the *European* Observatories.

* It would be impossible to have any distinct or regular Notion of the Stars, with respect to their Number, Order, Distances, &c. without first reducing them to proper Classes, and arranging them in certain Forms, under the Names of

Animals or other Things, as the *Ram*, the *Bull*, the *Crown*, &c. which are call'd *Constellations*. By this means Astronomers are enabled to form Catalogues of the Stars, and to record their Places in the Heavens; and thus the Observations of the ancient and modern Astronomers may be compared together. *Hipparchus*, about one hundred and twenty Years before *Christ*, is said to be the first who framed a Catalogue of the Stars, in which he made use of the Observations of some preceding Astronomers; and his Catalogue, which contain'd 1026, was afterwards copied by *Ptolemy*, and adjusted to his own Time. In the Year 1437, *Ulugh Beigh* made a new Catalogue of 1022 Stars.

WHEN

WHEN Dr. *Oliver* visited the Island of *Ween*, which he says is not above three Miles in Circumference, he found no Remains of *Tycho's* Castle but Part of a circular Stone Wall, by which the Observatory was separated from the other Apartments. As to the fine *Apparatus* of this Astronomer, the Doctor tells us, that most of the Instruments are scatter'd up and down in *Germany*, though some few were still remaining at *Copenhagen* when he was there;

which has been translated out of *Persian* into *Latin* by Dr. *Hyde*. The next who made a Catalogue of Stars from his own Observations was *Tycho Brabe*, who rectified the Places of 777 Stars for the Year 1600; which *Kepler* increased to 1000, from other Observations of the same Astronomer. *Bayer* publish'd a Catalogue of 1160. *Hewelius* composed one of 1888 Stars, adjusted to the Year 1660, but only six hundred and three of those from his own Observations. The last and most compleat of all is the *British* Catalogue, compiled from the Observations of the accurate Mr. *Flamsteed*, the first Astronomer to whom the Royal Observatory at *Greenwich* was committed, and

who, as Dr. *Halley* expresses it, seem'd born for the Employment. Here this great Man applied himself with unwearied Pains to observe the heavenly Bodies for a long Course of Years; but though his Observations were very numerous, and his Papers swell'd to a great Bulk, nothing appear'd from him in Publick worthy so much Expence and Preparation. This occasion'd Prince *George of Denmark* to appoint Sir *Isaac Newton*, Dr. *Gregory*, Dr. *Arbutnot*, and other Members of the Royal Society, to inspect Mr. *Flamsteed's* Papers, and chuse out of them such as they should think fit for the Press, purposing to print them at his own Expence: But the Patron of the Work dying before the

and

and in particular he saw, in the *Round Tower*, *Tycho Brahe's* own Celestial Globe, which was six Feet nine Inches in Diameter. This Tower (he adds) was built in 1601, near the Royal College in *Copenhagen*, for making astronomical Observations, and is above a hundred and fifty Feet high. The Diameter of the Area at top is sixty Feet, and the Passage up to it wide enough for two Coaches, which winding with an easy and almost imperceptible Ascent, it sometimes serv'd as a Place of Parade for the Gentry to take the Air as well as for an Observatory.

HAVING thus described what seem'd most worthy of Notice in *Denmark* and *Norway*, we think it not improper to proceed towards the Pole, and take a View of *Spitzbergen* or *Greenland*. We are sensible, indeed, that Geogra-

Impression was half finish'd, it lay still for some Time, till at length it was resumed by Order of Queen *Anne*, and the Care of the Press committed to Dr. *Arbutnot*, and that of correcting and supplying the Copy to Dr. *Hally*, Mr. *Flaunsted's* Successor in the Royal Observatory. Such was the Rise and Progress of the *Historia Caelstis*, wherein we have a Catalogue of about 3000

Stars, distinguish'd into seven Degrees of Magnitude, in their proper Constellations, with their Longitudes, Latitudes, &c. but scarce one thousand of these are at any time visible to the naked Eye. This Catalogue is revised for the Year 1689; and as nothing was wanting either in the *Apparatus* or Observer, it may be look'd upon, so far as it goes, as a perfect Work.

phers

phers consider this and several other Countries not thoroughly discover'd, as distinct from any of the four Parts of the World; but as *Greenland* lies directly Northward from the North Cape of *Norway*, and it is not yet known to be join'd to *America*, we shall look upon it as belonging to *Europe*, and therefore speak of it in this Place, without the Apprehension of being censured as immethodical.

C H A P. VIII.

Of GREENLAND.

THIS Country, the nearest to the North Pole of any yet known, is call'd *Spitzbergen* by the *Dutch*, and by the *English* Geographers sometimes simply *Greenland*, and sometimes *New Greenland*, to distinguish it from a large Country lying more Westward and earlier discover'd, commonly call'd *Greenland*, which signifies the same as *Groenland*, the former being only the *Danish* and *Dutch* Way of pronouncing and writing the latter. It is probable our unfortunate Countryman Sir *Hugh Willoughby* was the first Discoverer of *Greenland*, in the Year 1553, as is conjectur'd from a Note found in his Cabin after he and his Ship's Company were embay'd with Ice and frozen to Death on
the

the Coast of *Lapland*. Three Years after this, Mr. *Stephen Burrows* arrived in the Latitude of 78 Degrees, and sail'd along a desolate Coast to the Latitude of 80 Degrees 11 Minutes, which was undoubtedly no other than *Greenland*. But this is denied by the *Dutch*, who pretend to be the first Discoverers in the Year 1596, when they fitted out Captain *Barents* with two Ships to find a North-East Passage to *China*. Be this as it may, they have no Occasion to dispute with the *English* the Discovery of *Greenland*, since the Profits resulting from it are almost wholly theirs.

WE do not know that there are any Towns or Villages in the whole Country, or that it is inhabited by any human Creatures. The Soil is little else but Rocks and Mountains, whose Tops seem lost in the Clouds; from whence prodigious Heaps of Ice and Stones fall down into the Vallies. In some few Places indeed the Land is low, and cover'd with Snow and Ice, which being melted in the Summer discovers a barren Soil, overspread with Heath and Moss, or entirely stony. The Mountains likewise, which are most expos'd to the Sun, are cover'd with Heath and Moss; and the Cliffs of the Rocks are frequented by vast Numbers of Fowls, whose Dung, with the Moss wash'd down by the melted Snow, enriches the Soil in some Parts near the Shore, where it produces a Kind of Lettuce, Sorrel, Scurvygrass, Mouse-Ear, Heart's-Ease, and some Plants unknown to our Climate.

The Air is so cold, that it freezes almost without Intermission, except in the Months of *June*, *July*, and *August*, when the Weather is usually calm and very warm. For almost four Months in the Winter there is perpetual Night, and for the same Space of Time in Summer the Sun never sets, making one continual Day.

As *Greenland* is not inhabited by the human Species that we know of, our Business will be chiefly to give an Account of the Animals observ'd there by People who have visited the Coasts of that frozen Country, and of the remarkable Kinds of Fish that are found in the Northern Ocean.—The *White Bears* of *Greenland* are differently shaped from those of other Countries, being leaner and swifter, with a longer Neck, and a Head more like a Hound's than that of a common Bear; neither can they properly be said to growl, but rather bark like a Dog that is hoarse. Their Skin is a good Defence against the Severity of the Cold, their Hair being long and soft as Wool, and their Flesh is indifferent Food. Some of these Creatures are six Feet high, and fourteen in Length; and they are said to be so tender of their Young, that they will rather suffer themselves to be kill'd, then desert them when in Danger. They are often found floating on the Ice at a vast Distance from the Shore, and swim from one Mountain of Ice to another, feeding on dead Whales or other Fishes they happen to meet with. Those who have winter'd in *Greenland* observe

observe, that these Bears are not to be seen during that Season.

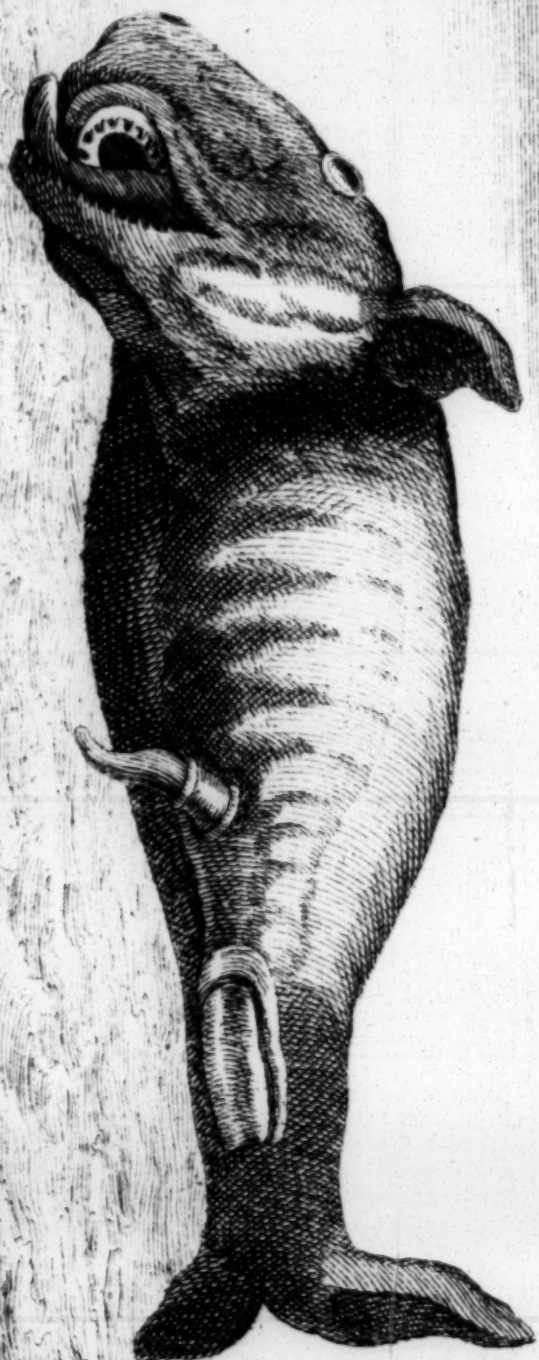
THE Deer in this Country are grey and shaggy, with Horns like a Hart, having three or four Branches on each Side, about a Foot long, and two Inches broad; and they have long Ears and short Tails. Many of them are starv'd in Winter, and the rest are very lean in the Spring; but in Summer they grow so fat by feeding on a Sort of yellow Moss, that their Flesh on the Ribs is sometimes four Inches deep. Their Flesh is very good roasted, and so are the Foxes of *Greenland*, of which there are great Numbers, and of different Colours.—There are not many Land-Fowl, but Water-Fowl in abundance, though none of them so curious as to merit a particular Description.

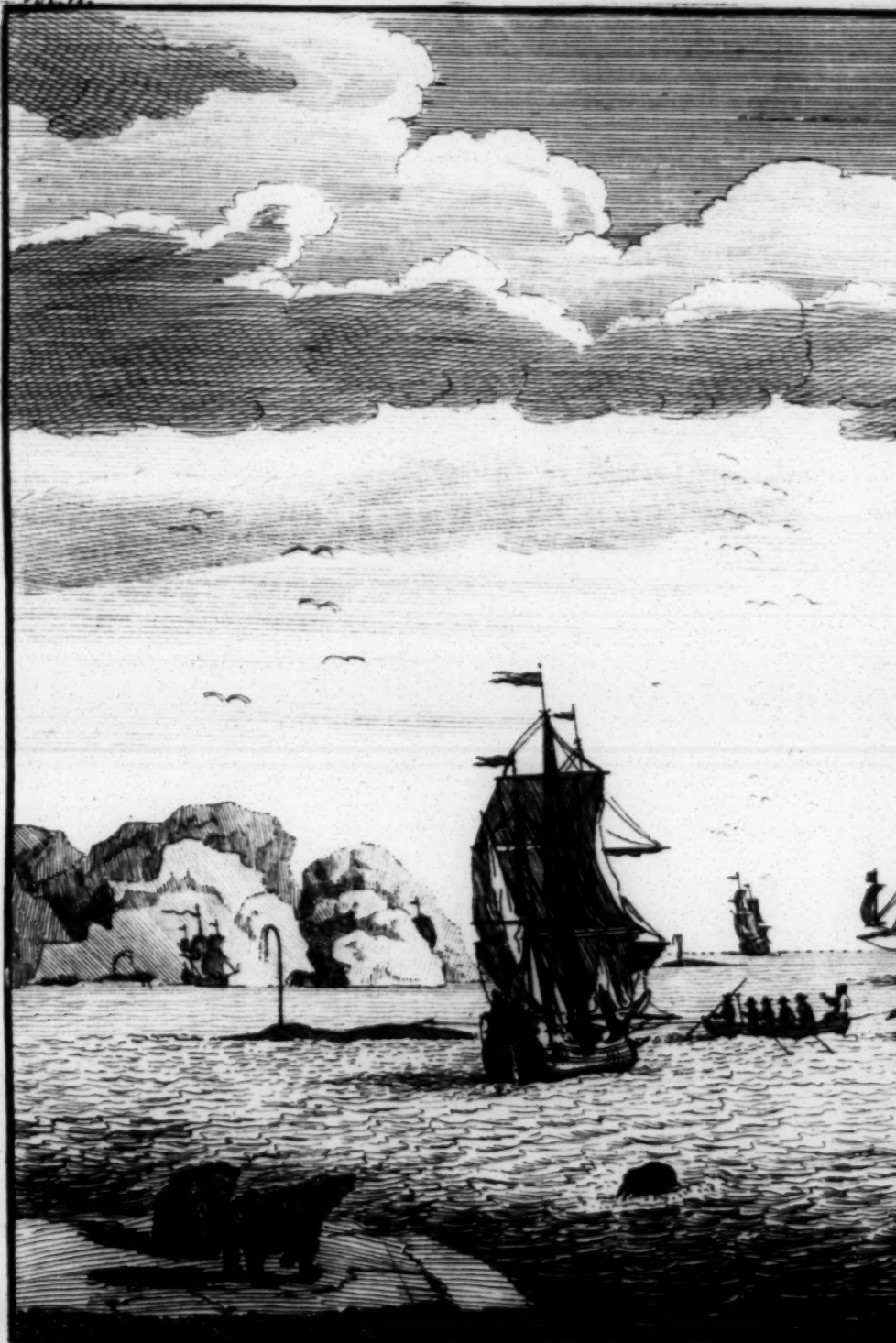
THE Seas of *Greenland* are stored with various Kinds of Fish, which are not so commonly found elsewhere, especially *Whales*, and those larger than in any other Part of the World, some of them being two hundred Feet in Length, but the more usual Size is from fifty to eighty or a hundred. The true Whale differs from other Fish that bear that Name in his having no Teeth, instead of which he has a Kind of Whiskers of a horny Substance growing on each Side of his upper Jaw, consisting of a great Number of different Blades, some of them a Foot broad at the Bottom, and twelve or fifteen Feet long, ending in a Sort of Fringe, not unlike Hog's Bristles. These Whiskers

split and fashion'd are what we call *Whalebone*, and the genital Member of the Animal serves for the same Purpose, but not the Fins, as is commonly imagin'd. The Whale has a very large flattish Head, with two small Eyes, not bigger than those of an Ox; and for his Bulk he has a narrow Throat, being seldom more than a Foot wide, though he can open his Jaws several Fathoms. On the Top of his Head he has two Holes, through which he draws in Air, and discharges Water taken in at his Mouth, which he spouts up to a surprizing Height. His Bones are hard like those of Quadrupeds; but, instead of having a Cavity in the Middle, they are porous and full of Marrow. The Belly of the Whale is white, but the rest of the Body is black or reddish; and the Flesh is coarse, hard, and mix'd with Sinews. The outermost Skin is thin, which covers another almost an Inch thick, but so tender, that it is of little or no Defence to the Animal against the Assaults of its Enemies. Between this Skin and the Flesh lies the Fat or Blubber, from whence Train-Oil is procured by boiling. The Whale has very strong Sinews about the Tail, with which he turns and winds himself as he pleases, and swims with wonderful Swiftneſs*, making a

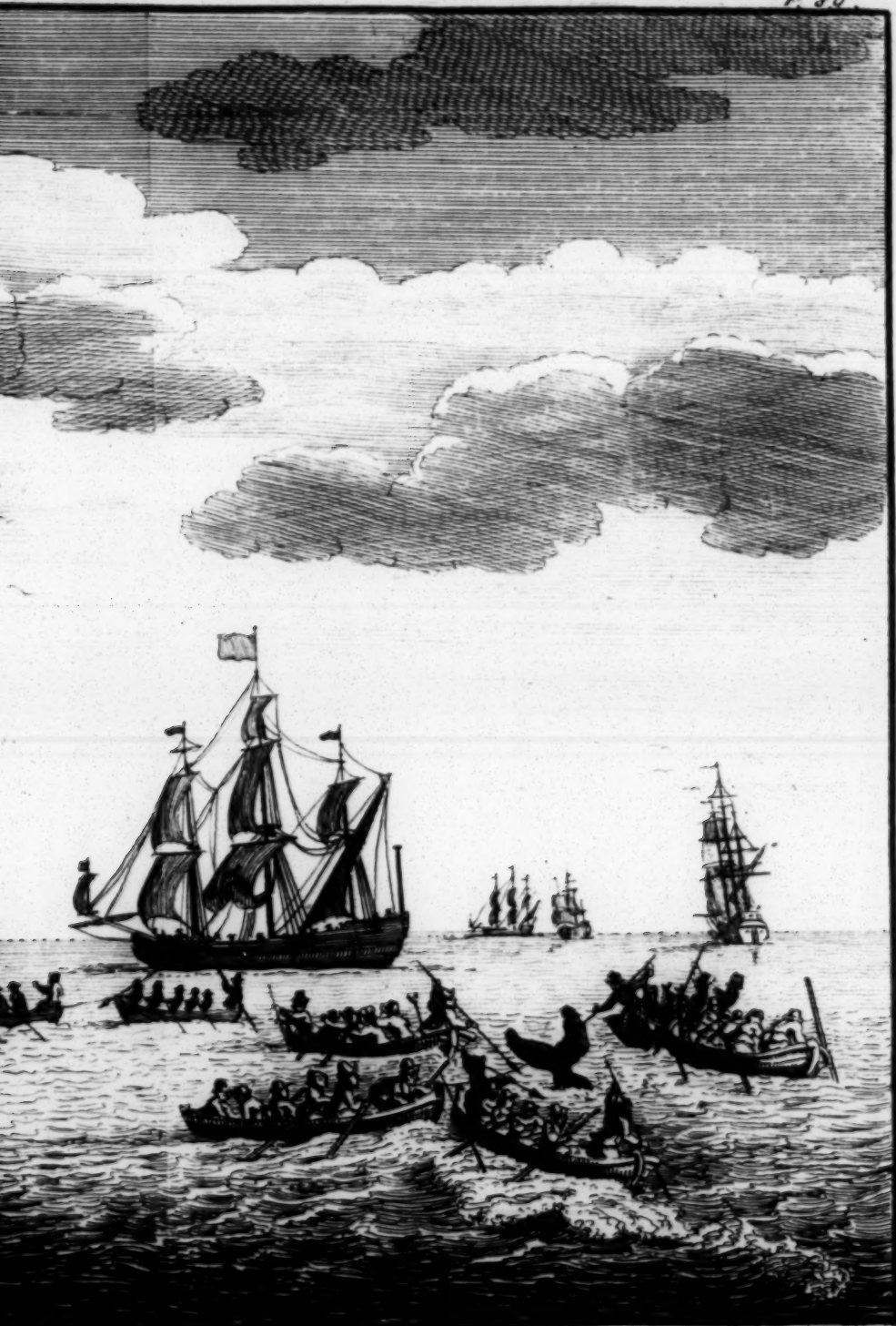
* In Fishes the Tail is only serving to keep their the grand Instrument of Bodies well poised and balanced, and prevent Vacillation. For this Reason

Whale





A VIEW of the WH



WHALE-FISHERY.

B. Cole Sculp.

Track in the Sea like a large Ship under Sail, These Animals are mightily tormented with a Kind of Lice, which sometimes eat large Holes in their Bodies; and it is supposed they feel great Pain before a Storm, being observ'd at such a Time to twist and tumble about in a violent Manner. As to the Food of Whales, it is probably small Fishes of several Sorts; but upon opening their Bodies there is seldom found any thing but a few Weeds, and a Quantity of black insects like Spiders, which are very numerous in the Northern Seas.—Whales copulate like four-footed Beasts, bring forth their Young alive, and suckle them with their Milk.

THE Profit arising from the Bone and Oil of these huge Creatures induces the *Dutch* (and some Merchants of other Nations) to send annually a great many Ships to the Coast of *Greenland*, where they take them in the following Manner. When the Seamen see or hear a Whale spout, every one hastens to his Boat, of which there are five or six belonging to each Ship, and six or seven Men to each Boat; and having row'd till they come pretty near the Whale, the Harpooneer strikes him with his

Fishes are more strong and musculous in the Tail than any other Part; and it is observable that the motive Parts of all Animals are the strongest, as the Thighs of Men for walking, the pe-

ctoral Muscles of Birds for flying, &c.—The Manner wherein Fishes row themselves forwards by the Tail is well explain'd by *Borelli* in his Treatise *de Motu Animalium*, Part. I. Cap. 23.

Harpoon or Harping-Iron, which is a Kind of Javelin five or six Feet long, pointed with Steel and bearded like an Arrow, to the other End whereof a Line is fasten'd. This requires both Strength and Dexterity, in order to make the Wound deep enough, and in the most proper Place. As soon as the Whale finds himself wounded, he plunges swiftly towards the Bottom of the Deep, and would inevitably sink the Boat if they did not give him Line enough, which they take care to do by fastening one to another, sometimes to the Length of eight or nine hundred Fathoms. The Man at the Helm observes which Way the Rope goes, and steers the Boat accordingly, that it may run out directly forwards, otherwise the Boat would soon be overset; and the Harpooneer keeps wetting the Place where the Line runs, lest the Boat should take Fire by the Quickness of the Motion. The other Boats row before, and observe the Line, now and then drawing it in gently when they find it slacken, to prevent the Whale's entangling it amongst the Rocks. When the Fish is pretty far spent and weaken'd, he rises up again for Air, upon which the Harpooneer gives him a second Wound, and perhaps they dart several little Spears into his Body; till at length being quite tired, and fainting with the Loss of Blood, the Men have an Opportunity of approaching him, and thrusting a long steeled Lance under his Fins into his Intestines, which soon puts a Period to his Life. His Vitals

tals being touch'd, he spouts out Streams of Blood instead of Water, and rages most furiously, beating the Sea with his Tail till it is all on a Foam, and the Noise of it may be heard at a great Distance; till having quite lost his Strength, he turns on one Side and expires.

ALL the Boats are now employ'd in towing the floating Carcass to the Ship, against the Side of which it is fasten'd by Ropes, one round the Neck, and another round the Tail. This done, three or four Men go down upon the Whale with a Sort of Irons on their Feet to prevent their slipping, and with large Knives cut off the Fat in Pieces several Feet long, which are drawn up into the Ship by Lines and Pulleys. Then they cut off the Whalebone from the upper Jaw of the Fish with a Hatchet made for that Purpose, and having thus stripp'd the Carcase of all its Fat and Fins, the rest is turn'd adrift, and is welcome Food to the Birds and white Bears. As the large Pieces of Fat are cut off, the rest of the Crew are employ'd in cutting them smaller, and picking out all the Lean; after which they are put up in Tubs, and stow'd in the Hold of the Vessel. When the fishing Season is over, nothing remains but to sail homewards, where the Blubber is boil'd and melted into Oil.—In general this Fishery is very profitable, but very uncertain, a Ship sometimes taking seven or eight Whales in one Voyage, and at other times returning home without taking any thing at all.

BESIDES

BESIDES the Whale, there are many other remarkable Fishes and amphibious Animals found near *Greenland* and in other Parts of the Northern Ocean, which require a brief Description. Some of these indeed are look'd upon to be of the Whale-Kind, particularly the *Fin Fish*, which equals the Whale in Length, but not in Thickness, and has a Fin on his Back, which the Whale has not; from whence his Name. He throws Water higher than a Whale of his Size; has brown Lips, which are twisted like a Rope; and his Body much resembles a Tench in Colour. He is extremely nimble, as well as strong; and is kill'd in the same manner as the Whale. When these Fish come upon the Coast, the Whales disappear.

THE *Horse-Whale*, call'd also the *Morse* or *Sea-Horse*, is an amphibious Creature as large as an Ox, with four Feet, a thick round Head, and a short Neck, in which lies his greatest Strength. His Eyes are red, his Ears small, and his Nostrils large, from whence he spouts Water. His Skin is very thick and cover'd with Hair, and from his upper Jaw proceed two long Teeth, which are as white as Snow, and more esteem'd than Ivory, as they keep their Colour better. This Creature is very bold, making towards the Boat as soon as he is attack'd, and endeavouring to overset it, sometimes tearing large Pieces from it with his Teeth; but the Seamen generally give him a warm Reception, and dispatch him with Lances. When
Whales

Whales happen to be scarce, the Oil and Teeth of these Animals help to supply the Deficiency*.

THE *Monoceros* or *Sea-Unicorn* has been mention'd in the preceding Chapter, as daring to attack the largest Whale with his Horn; but he is not the only Enemy the Whale has to deal with. The *Sword-Fish*, so call'd from his sharp-pointed upper Jaw resembling a Sword, pursues the Whale and Fin-Fish with great Eagerness. They are of various Sizes, from three to twenty Feet in Length, are shaped almost like a Man's Arm, and their Eyes stand far out of their Head. A few of them will dispatch a large Whale, and when they have kill'd him they feed chiefly on his Tongue; but sometimes they are deprived of their Prey by the Fishermen who are Spectators of the Combat.

* There is a little Island, lying directly South of *Greenland*, between it and the Continent of *Europe*, remarkable for the great Number of *Morses* that frequent the Coast. It is call'd *Cherry-Island*; and it appears from *Harris's Collection*, that the *English* have formerly made several profitable Voyages thither, where in one Season they got three Hog-

heads of *Morses* Teeth, and made twenty-two Tons of Oil out of the Flesh of those Animals. In the Year 1610 the *Russia* Company took Possession of the Island, and that Year they kill'd a thousand *Morses*, and made about fifty Tons of Oil: But we do not find that any Ships have been sent thither for more than a hundred Years past.

ANOTHER Enemy of the Whale, and the most voracious of all, is the *Hay*, of which there are several Sorts, the largest of them about eighteen Feet long, and generally of a greyish Colour. This Fish does not kill the Whale outright, but bites large Pieces of Fat from his Sides, making Holes as if they had been dug with a Shovel; insomuch that Fishermen have sometimes taken Whales which have had great Part of their Blubber torn away in this Manner. The Liver of the Hay is exceeding large, and abounds in Oil; and his Flesh, when dried some Days in the Air, and afterwards boil'd or roasted, is accounted tolerable Food; but the less the Fish, the better.

We shall conclude this Chapter with an Extract of the Hardships sustain'd by eight *Englishmen* who winter'd in *Greenland* in the Year 1630, which we hope will not be thought entirely foreign to our Subject, nor prove unenterprising to the Reader.—Three Ships were fitted out that Year for *Greenland*; and one of them, a little before the Time of their returning home, being straiten'd for Provisions, the Captain sent eight Men ashore in a Boat to kill Venison, with Orders to follow the Ship to *Green Harbour*, which lies a little to the Southward of the Place where they went ashore. These Men, having kill'd fourteen or fifteen Deer, propos'd to have gone on board the Ship the Day following; but a great Quantity of Ice driving towards the Shore, the Ship was obliged to stand

stand so far out to Sea, that, when they came to *Green-Harbour*, she was out of Sight. Now the Ships being to leave *Greenland* within three Days, they thought it most adviseable to make the best of their Way to *Bell Sound*, the Place of Rendezvous, distant from *Green-Harbour* about sixteen Leagues to the Southward. As they were under terrible Apprehensions lest the Shipping should be gone from thence before they arriv'd there, in order to lighten the Boat and make the greater Expedition, they flung the Venison into the Sea; but none of them knowing the Coast very well, they over-shot the Port above ten Leagues; when, being sensible of their Error, they return'd to the Northward. However, one of the Company being positive that *Bell-Sound* lay farther to the South, they directed their Course Southward again; till being a second Time convinced of their Mistake, they turn'd again to the North, and at length arrived at the desired Harbour; but they had spent so much Time in rowing backwards and forwards, that the Ships had actually sail'd for *England*. As soon as they perceiv'd this, they stood looking on one another as Men amazed at the Distress to which they were on a sudden reduced, being neither provided with Cloaths, Food, Firing, nor House to shelter themselves from the piercing Cold they were to expect in so rigorous a Climate. But their Consternation being a little abated, they began to think of the properest Means to keep themselves alive during

ring the approaching Winter, in a Country within twelve Degrees of the Pole, being the first that ever staid there during that dismal Season: And perhaps History does not afford an Instance of a Company of Men in so distressed a Condition, that shewed more Courage and Patience, or made a wiser Provision for their Preservation.

THE first Thing they agreed on was to go to *Green Harbour*, where they arrived in twelve Hours; and having kill'd near twenty Deer and four Bears, they brought them to *Bell-Sound*. Here happen'd to be a large Booth erected, for the Coopers to work in at the fishing Season, eighty Feet long and fifty broad, cover'd with Tiles, and the Sides well boarded. Within this they built another, whose Length was twenty Feet, the Breadth sixteen, and the Height ten, making it as close and warm as possible. They also provided themselves with Wood, which they stow'd between the Beams and Roof of the greater Booth; but taking a slight Survey of their Provisions, they found there was not half enough to serve them all the Winter, and therefore agreed to allow themselves but one Meal a Day, putting their Confidence in Heaven, and praying for Strength and Patience to go through their Afflictions.—By the Beginning of *October* the Nights were grown long, the Weather very cold, and the Sea frozen over; and having now no Business, as hitherto, to divert their melancholy Thoughts, they began

gan more than ever to reflect on their miserable Condition, but receiv'd great Comfort from their frequent and fervent Devotions. And now, upon a more narrow Survey of their Provisions, they concluded to have only three Meals a Week of Venison and Bear, and four Meals of Fritters, which is a very loathsome Food, being nothing but the Scraps of Whale's Fat, flung away after they have been boil'd for Oil; and lest their Firing should not hold out, they thought it proper to dress more Meat at a time, and put it up in Hogsheads.—On the 14th of *October* the Sun left them, but they had the Moon continually, and also a glimmering Kind of Day-light for some Hours, which grew less and less till the first of *December*, from which Time to the 20th they could not perceive any Day-light at all. As for Light within Doors, finding some Sheet-Lead upon one of the Coolers, they made three Lamps, which they supplied with Oil that was fortunately left in the Cooper's Tent; and for Wicks they made use of Rope-Yarn.—With the new Year their Day, or rather Twilight, began to increase; and the Cold also increased to that Degree, that it raised Blisters on their Flesh as if they had been burnt, and if they touch'd Iron it stuck to their Fingers. On the third of *February* they were chear'd again by the bright Rays of the Sun, which shone upon the Tops of the snowy Mountains, and, after so long and dismal a Night, afforded them the most delightful Scene

that ever was beheld. What added to their Joy was the Appearance of the Bears, one of which they kill'd at the Door of their Booth; but t'ie Cold was so intense that they could not stay there to take off her Skin, but dragg'd her into their Tent, and there cut her to pieces. Upon this they fed twenty Days; and afterwards they kill'd several other Bears, one of them six Feet high; and having now Plenty of Food, and eating heartily two or three Meals a Day, they soon found their Strength increase.—Towards the Middle of *March* the Days were considerably lengthen'd; and the Fowls, which on the Approach of Winter fled to the Southward, began to resort to *Greenland* again in great Numbers. The Foxes also, which had kept close in their Holes all Winter, now appear'd abroad; of which our Countrymen took no less than fifty, and found them to be very good Food when roasted.—In *May* the Weather beginning to grow warm, and the Season for the Arrival of the Ships coming on, some of them went almost every Day to the Top of a Mountain, to see if they could discern a Sail; but on the 25th of that Month, none of them happening to go abroad, one of them in the outward Booth heard somebody hail the Tent, which proved to be one of the Boat's Crew belonging to a Ship just come from *England*. Of this the Man had no sooner inform'd his Companions, but they all ran out to meet their Countrymen with such Transports of Joy as cannot



cannot be express'd; by whom they were not only kindly receiv'd, but upon their Return to *England* they had a handsome Gratuity, and were well provided for by the Generosity of the Merchants.

WITH these poor Mariners, thus providentially preserved and restored to their native Country, we take leave of *Greenland*, and return to the *European* Continent.

CHAP. IX. *Of SWEDEN and LAPLAND.*

LAKES, SPRINGS, and CATARACTS.

THE Kingdom of *Sweden* is one of the largest in *Europe*, and in some Places the Soil is tolerably fruitful; but the great Number of barren Mountains dispersed over the Face of the Country give it a disagreeable Aspect. From the Mountains fall innumerable Rivers, or rather Torrents, not many of them navigable, on account of the Rocks and Cataracts that obstruct their Passage; and these form several great Lakes, some of which are four-score *English* Miles in Length and twenty in Breadth. If therefore we make Abatements for the Mountains, Lakes, Woods, Heaths, and

Marshes, with which the Country abounds, the habitable Part of it will be reduced to a small Proportion compared to the Extent of the Whole.

AMONGST the Lakes of *Sweden*, that call'd *Vetter* is so remarkable in many Respects, that it ought by no means to escape our Notice. It divides *East* and *West Gotbland*, being in Length from North to South above eighty Miles, and about eighteen broad in the Middle, growing narrower towards each Extremity. The Water of this Lake is very clear, and in some Places so deep, that it has been sounded with three hundred Fathoms of Line without finding the Bottom. For the most part it is free from Rocks, and has but few Islands, the principal of which is *Visingsoe*, lying in the Middle of the Lake. It is often disturb'd by Storms, and sometimes so suddenly, that the Surface begins to be ruffled before the least Breath of Wind is perceived, so that the Cause seems to proceed from the Bottom of the Waters; and it is no common Thing for Boats to be toss'd by a Storm in one Part of the Lake, whilst others not far off are in a perfect Calm. That such Eruptions and Agitations of the Waters are promoted by subterraneous Winds, seems to be confirm'd by various Phænomena; for immediately before a Storm, and whilst the Sky is yet clear, there is perceived a Noise like Thunder in the Lake, which *Dr. Hearne* tells us he has often heard himself, and which was
always

always follow'd by a Tempest. Of this the Inhabitants of *Visingoe* are more sensible than any others, for from that Part of the Island whence the Wind will blow the next Day, they hear a confused Noise like the firing of Cannon; and when this Rumbling is heard in the East, it is generally follow'd by Rain and Hail. Some People have likewise observ'd, while the Water has been very calm, a great Number of little Clouds, like so many Darts, rising up here and there from the Bottom of the Lake, which uniting in the Air form'd a mizzling Rain; whence it plainly appears, that this is much owing to subterraneous Winds. To such Winds undoubtedly, together with those from above, we may attribute the sudden thawing of the Ice in the Spring, which one Minute is strong enough to bear Horses and Sledges, and the next is broken to pieces. The strange Grumbling of the Waters, which precedes this terrible Eruption, warns Travellers to make the best of their Way; but those who happen to be at a great Distance from Land are immediately drown'd, or float upon Shoals of Ice till they meet with Relief: And what is still more dangerous, the Ice sometimes with the least Blast of Wind sinks suddenly to the Bottom.

THE violent Under Currents of Water observed in this Lake are also very surprizing, which directly opposing the Winds and Waves give the Fishermen a great deal of Trouble. From these, as well as from its unfathomable

Depth and subterraneous Winds, it is supposed to have a Communication under Ground with another large Lake call'd *Venner*, about forty Miles to the Westward; and this seems to be confirm'd by several Whirlpools that lie between these Lakes, two of which have been founded, and found of a vast Depth. What farther countenances this Opinion is, that some Years, without any visible Cause, the Waters increase, and decrease again the following Years, as several curious Persons have observ'd.

THERE is a Spring not far from the Lake *Vetter*, call'd the *Hungry* or *Prophetic Fountain*, because they say it never has Plenty of Water but when there is a Scarcity of Corn the following Year. It lies in a Valley encompass'd with sandy Hills, and has this Peculiarity, that in a rainy Summer it is commonly dry, whereas in the driest Summers it sometimes overflows the Highway near *Vadstein*. In 1685, which was a very wet Year, this Spring was quite dried up; but the next Summer, which was not so rainy, it was observ'd to increase: And in the very dry Summer of the Year 1705, when all the neighbouring Springs entirely fail'd, this had a plentiful Stream of Water.

CATARACTS, as we have said already, are frequent in the Rivers of *Sweden*; but the most noted of all, and the only one worth giving an Account of, is that within a few Leagues of *Gottenburg*; where a River, which issues from the Lake *Venner*, falls down a prodigious high
Preci-

Precipice into a deep Pit, with a terrible Noise, and with such Violence, that large Mafts, which are floated down the River to *Gottenburg*, frequently dive so far under Water by the Fall if they happen to pitch endways, that some are half an Hour, others three Quarters, and some a whole Hour or more, before they rise up again to the Surface. Many Attempts have been made to find the Depth of this Hole, with Lines of several hundred Fathoms; but no Bottom could ever be discover'd.

FOSSILS.

SWEDEN abounds with various Kinds of Minerals and other Fossils; and among its Mines there is one of Silver, into which the Workmen are let down in Baskets to the Depth of above a hundred Fathoms, where the Roof of the Mine is as high as a Church, supported by vast Arches of Oak; and from thence they descend by Ladders or Baskets to the lowest Part of the Mine, at least forty Fathoms more. It is not known when this Mine was first discover'd, but it must have been wrought for many Ages. The Ore yields but indifferently, and requires great Pains to refine it; however it annually produces about twenty thousand Crowns-worth of fine Silver, of which the King has the Pre-emption, paying one Fourth less than the real Value.—Several Mines
of

of Silver and Copper were discover'd last Century in the *Swedish Lapland*.

COPPER is found plentifully in several Parts of *Sweden*, and is reckon'd the finest in *Europe*. The most noted Mine is of vast Extent, and about eighty Fathoms deep, but it is said to have suffer'd much by the falling in of the Roof; and the working of it is attended with great Discouragement, from the large Share the Crown has in the Profit*. The Copper made yearly out of this Mine amounts to the Value of two hundred thousand Pounds, whereof the King has a fourth Part, and a Duty upon the Remainder of 25 *per Cent*. when it is exported unwrought.—Copper is of all Metals the most ductile and malleable after Gold and Silver, and abounds much in Vitriol and Sulphur. It is found in Glebes or Stones of various Forms and Colours, which are first beaten small and

* Some Years ago an *Italian* Gentleman came into *Sweden*, with Proposals to make Copper a shorter and cheaper Way than had till then been practis'd, so as to make that in five Days which before required three Weeks, and with fewer Hands, and one fifth Part of the Charcoal. The Bargain was made, and his Reward to be a 100,000 Crowns. His first Essay succeeded to Ad-

miration; but when he came to work in earnest, and had got his new-invented Furnaces built to his Mind, the Miners, as he complain'd, pick'd out the worst Ore, and were otherwise so envious and untractable, that he fail'd of Success, and lost his Reward: Nor was it without Difficulty that he obtained Leave to buy Ore, and practise his Invention at his own Expence.

wash'd,

wash'd, to separate all the earthy and impure Parts wherewith they are mix'd. After washing they are melted, and the Metal run into a Sort of Moulds, which form large Blocks, by some call'd *Salmons*, and by others *Cakes of Copper*. To render it more pure and beautiful, they melt it again once or twice, some of its coarse extraneous Parts being left at each Fusion, and a Quantity of Tin and Antimony added; and in this State it is call'd *Rose-Copper*.—This Metal is often found native in a malleable State, sometimes in beautiful branch'd Forms or small slender Fibres, and sometimes in little globular Lumps, or Masses of an irregular Figure.

THE Mines of *Sweden* likewise afford vast Quantities of excellent Iron, of which, besides what is manufactur'd in the Country, they export yearly to the Value of near three hundred thousand Pounds.—Of the Nature of Iron-Ore, or the Manner of working it, we need say nothing in this Place, having given a sufficient Account thereof in speaking of our Iron-Works in the Forest of *Dean* in *Gloucestershire**: But we shall here take Occasion to describe that wonderful Fossil call'd the *Magnet* or *Loadstone*, which is found plentifully in the Iron-Mines of *Sweden*, and indeed in all Countries that have such Mines, though the best are said to be brought from *Bengal* and *China*.

* See Vol. I. p. 33.

THE *Magnet* is not properly to be consider'd as a distinct Species of Fossils, being in reality nothing but a very rich Iron-Ore, found in detach'd Masses of various Forms and Sizes, of a dusky Iron-Grey, and often tinged with a brownish or reddish Colour. It is very heavy and hard, of an uneven Surface, and of a firm Structure, but usually with some porous Irregularities within. It is endued with several extraordinary Properties, as that of attracting Iron and directing its Poles to those of the World, of which, so far as they relate to the *Mariner's Compass*, we have already taken notice*; but for the sake of such of our Readers as may not be acquainted with the Virtues and Phænomena of the Loadstone, we shall here enumerate some of the most remarkable. 1. Every Magnet has two Poles, one of which points Northwards, the other Southwards; and if the Magnet be divided into ever so many Pieces, the two Poles will be found in each Piece. 2. One of these Poles attracts, the other repels Iron, but no other Body. 3. The magnetic Virtue is communicated to Iron by the Touch, and that very speedily; though the longer the Iron touches or joins the Stone, the longer will its communicated Virtue hold. 4. The Magnet loses none of its own Virtue by what it communicates to the Iron. 5. A Piece of Iron so touch'd by the Loadstone, and nicely suspended on a

* Vol. I. p. 114, & seqq.

sharp Point, will settle itself in a Direction nearly North and South. 6. The End touch'd with the South Pole of the Stone will point Northwards, and so *vice versa*. 7. A strong Magnet, at the least Distance from a lesser or a weaker, cannot draw to it a Piece of Iron adhering actually to such lesser or weaker Stone; but if it comes to touch it, it can draw it from the other: And yet a weaker Magnet, or even a little Piece of Iron, can draw away another Piece contiguous to a greater or stronger Loadstone. 8. A Plate of Iron only, but no other Body interposed, can hinder the Operation of the Magnet, either as to its attractive or directive Quality. 9. The Virtue of a Loadstone may be impair'd by lying long in a wrong Position*, as also by Rust, Wet, &c. and may

* Several Ways have been tried, with little Success, for recovering the decay'd Virtue of Loadstones; but there is a remarkable Experiment of this Kind made by Mr. Haa, which answer'd the Purpose so well that it deserves to be mention'd. This Gentleman had a Loadstone which would take up fourteen Pounds and a half, but having laid it by for several Years he found it had lost great Part of its Virtue; which he endeavour'd to

recover by several Means, but without Success. At last he reflected, that by Use and Exercise the Powers of animal Bodies were often improved, and it might possibly happen so with respect to some Properties or Powers of inanimate Bodies. Upon this Thought he hung as much Weight to the Stone as it would sustain, and so left it for the Space of some Weeks. Then returning he applied more Weight to the former, which it easily bore;

be

be quite destroyed by Fire. 10. A Piece of Iron-Wire well touch'd, upon being bent round in a Ring, or coil'd round on a Stick, will generally lose its directive Virtue, or at least have it much diminish'd; but if the whole Length of the Wire be not bent, so that the two Ends be left strait, the Virtue will not be destroy'd in those Parts, though it will in all the rest.

11. A Piece of Wire that has been touch'd, being split or cleft in two, the Poles are sometimes changed, as in a cleft Magnet, the Times changed, as in a cleft Magnet, the North becoming the South, and the South the North; and sometimes one Half of the Wire will retain its former Poles, and those of the other Half be changed. 12. By drawing the Back of a Knife, or a long Piece of Steel-Wire, &c. leisurely over the Pole of a Magnet, carrying the Motion from the Middle of the Stone to the Pole, the Knife or Wire will accordingly attract one End of the Needle; but if the Knife or Wire be drawn from the same Pole to the Middle of the Stone, it will repel that End of the Needle which in the other Case it attracts. 13. If either a Magnet or Piece of Iron be laid on a Cork, so as to float freely in

and thus by repeating the Addition of more Weight at several Periods, in about two Years Time the Stone had not only recover'd its

former Strength, but increased it so far, that it would now take up more than twenty Pounds.

the Water, it will be found, that which soever of the two is held in the Hand, the other will be drawn towards it; so that Iron attracts the Magnet as much as it is attracted by it. 14. As the Magnet communicates its Virtue to Iron, so when arm'd (as they call it) or set in Iron it will take up a greater Weight of it than it can alone*. 15. A Knife, &c. touch'd with a Magnet acquires a greater or less Degree of Virtue, according to the Part it is touch'd on. It receives the strongest Touch when it is drawn slowly from the Handle towards the Point over one of the Poles of the Magnet; and if the same Knife thus touch'd, and in Possession of a strong attractive Power, be re-touch'd in a contrary Direction, *viz.* by drawing it from the Point towards the Handle over the same Pole, it immediately loses all its Virtue. 16. The Magnet acts with the same Force

* It is likewise observable, that the Power or Force of Magnets is generally greater in small than in large ones, in proportion to their Bulk. Those of a large Size will rarely take up more Iron than three or four times their own Weight; whereas if small ones do not take up more than eight, ten, or twelve times their Weight, they are reckon'd but indifferent. A Gentleman at

VOL. II. N°. XVIII.

Bruton in Somersetshire has a Magnet, whose Weight, with the Armature, is but 43 Grains, and yet will take up 1032 Grains, which is 24 times its Weight: And we have heard of another Gentleman who wears one in his Ring, that scarce weighs three Grains, and will take up near 750 Grains, which is 250 times its Weight; but this is an Instance hardly to be parallel'd.

L

177

in Vacuo, as in the open Air*.—We may add to this, that Iron Bars, by standing long in an

* These are the principal Phenomena of the Magnet; but to account for the Manner in which they are produced, we have yet no satisfactory Hypothesis. Some of the Ancients ascribe the Action of the Magnet to a Soul that animates it, and others to a certain Sympathy between the Effluvia of Iron and those of the Magnet. The chief Opinion that prevails among the Moderns is that of *Des Cartes*, maintain'd by *Malebranche*, *Robault*, &c. and even admitted and confirm'd by Mr. *Boyle* and other great Philosophers. This supposes a subtle, impalpable, and invisible Matter, striated or channell'd, continually circulating round the Earth in the Planes of the Meridians, re-entering at the Pole opposite to that from which it issued, and so passing thro' the Earth in a Direction parallel to its Axis. The Magnet, it is imagined, has two Poles answerable to those of the Earth, and out of these issues a Matter like that just

mention'd, which gives the Impulse whereby Iron tends to the Magnet, and produces what we call *Attraction*. Now besides the Matter re-entering the Poles, there is a Quantity of it continually circulating round the Magnet, and forming a Kind of Vortex; and the Spaces wherein this Matter moves is the Sphere of the Magnet's Activity, within which its attractive Faculty is confined. The Essence of a Magnet therefore is supposed to consist in its being perforated by an infinite Number of parallel Pores, some whereof are disposed to admit the striated Matter from the North Pole of the World, others that of the South; and hence the North and South Poles of the Magnet.—Mr. *Whiston* takes the *directive* Power of the Loadstone to be mechanical, ascribing it to the circulating Effluvia, of which he thinks there are evident Indications in magnetic Experiments; as Mr. *Boyle* thinks there are of the magnetic

erect

erect Position, acquire a magnetic Virtue to a surprizing Degree, the lower End of such Bars being the North Pole, and the upper the Southern. Nay, Tongs and Pokers, by being often heated, and set to cool again in a Posture nearly erect, have acquired this wonderful Property.

THERE is a Sort of Stone found in *Sweden*, which yields Sulphur, Vitriol, Alum, and Minium, whereof Sir *Gilbert Talbot* has given us the following Account. It is ponderous, and of a yellow Colour, intermix'd with Streaks of White, as if compos'd of Gold and Silver. It runs in Veins among the Rocks, on which they lay Wood and set it on Fire; and when the Stone is heated they throw Water upon it to make it rend, and dig it up with Mattocks. They afterwards break it into smaller Pieces, and melt it in Ovens, in Iron Pots, which are placed sloping, so that the melted Matter may run out of one Pot into another set to receive it at the Mouth of the Oven. This Running of the Stone is *Sulphur*; and the remaining Mass is carried out, and laid on a Hill, where it is expos'd to the Sun and Air for two Years. It then takes fire of itself, yielding a thin blue Flame, scarce discernible in the Day-time, and leaving a blue Dust behind it; which the Work-

Effluvia of the Earth, tho' supposes entirely immechanical, like the Power of
they were never yet render'd sensible: But the attractive Power Mr. *Whiston* Gravity.

men observing, they dig it up, and put it into great Tubs of Water to infuse for twenty-four Hours. The Water is afterwards boil'd in Kettles, and put into cooling Tubs, wherein cross Sticks are placed, on which the *Vitriol* fastens like Sugar-candy. What remains of the Water, after the Extraction of the *Vitriol*, is mix'd with an eighth Part of Urine and the Lees of Wood-Ashes; which being again boil'd very strong, and set to cool in Tubs, the Sticks placed in them are incrusted with *Alum*. In the Water that remains after the *Alum* there is found a Sediment, which being separated from the Water, and burnt in an Oven, becomes red, and is the *Minium* wherewith they paint their Houses*.

ANIMALS.

THE vast Woods and Mountains of *Sweden* and *Lapland* abound with wild Beasts of various Kinds, such as Bears, Elks, Deer, Wolves, Foxes, &c. most of which are too well known to need a Description. The *Elk*, indeed, is a Creature which some of our Readers may neither have seen nor heard of, and

* What we commonly call *Minium*, or *Red Lead*, is a Preparation of Lead, made by melting the Metal in an unglazed earthen Pan, and stirring it till it be reduced

first to a blackish, then yellowish, and lastly to a very red Powder, which is of some Use in Medicine, but of more in Painting.

there-





The Elk

therefore we shall describe it here, though it is not peculiar to *Sweden*, but found in the Forests of *Muscovy*, *Poland*, and other Parts of *Europe*, and abundantly in *North America*. This Beast is like a Mule in Size and Shape, but has a longer Snout, a short Tail, cloven Feet; and two large branched Horns growing backwards, (the Female as well as the Male), which weigh frequently three and sometimes four hundred Pounds. Its Hair is brown, and about the Length of that of a Goat; its Ears nine Inches long, but its Tail not above two Inches; its Neck short and thick; its Skin strong and hard, though thin; and its Flesh very delicate Food, especially that of the Female. The Ligaments of its Joints are exceeding strong, which has perhaps been the Occasion of some Authors reporting that it has no Joints in its Legs at all; but this is a great Mistake. It does not run, but its Trot is almost equal to the swiftest running of a Deer; and it is said to kick with such Force, that the Blows will break Trees of a considerable Thickness.—The Elk (they tell us) is much subject to the Epilepsy, and it having been observ'd that the Animal frequently scratches its Head with his hind Feet, it has been whimsically apprehended to be done as a Remedy for that Distemper. Hence the Hoof of the Elk has acquired a Reputation as a Specific against epileptic Disorders, either taken internally or externally applied, and it is accordingly sold in the Shops; but there is

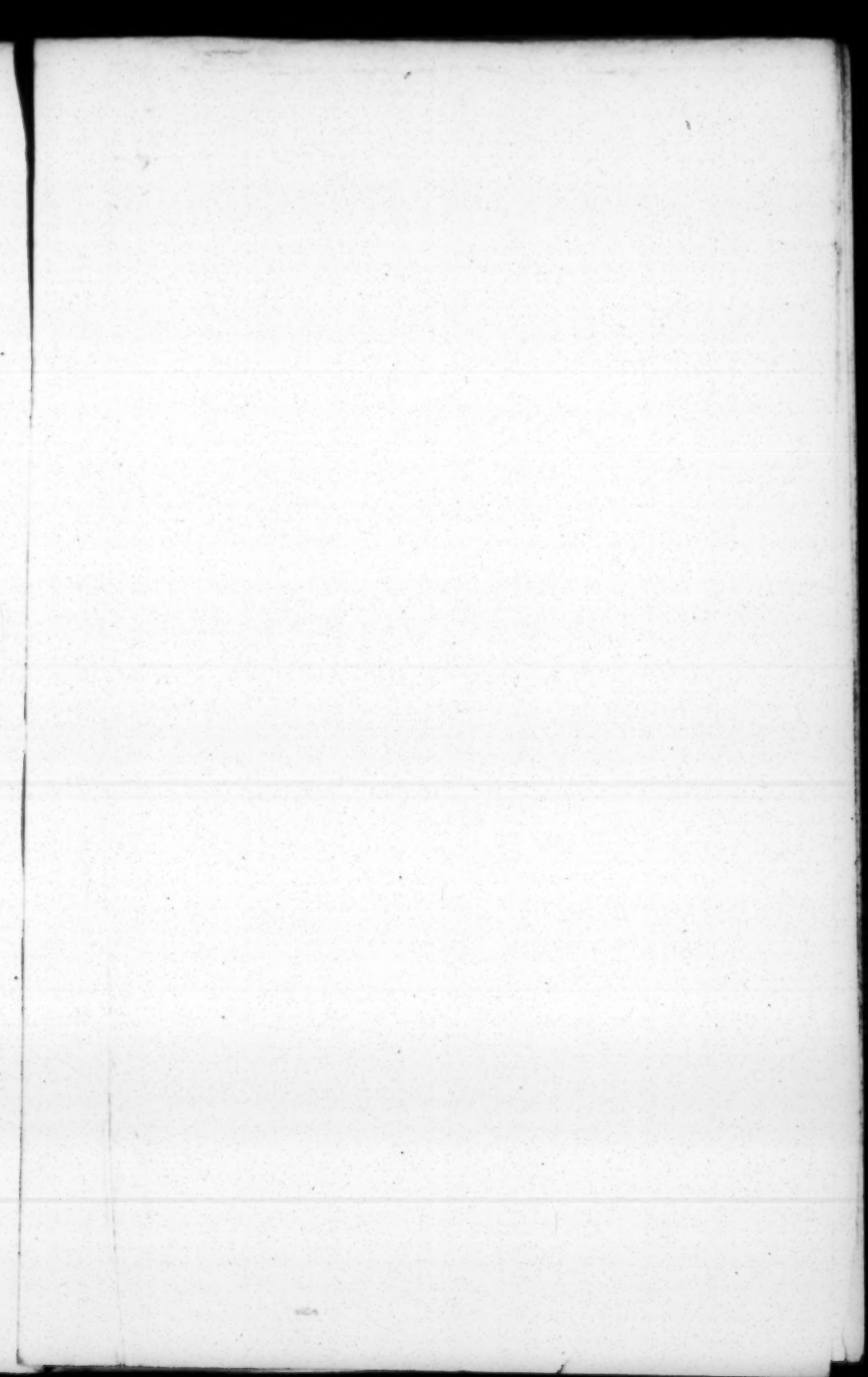
great Reason to believe that its Virtue is only imaginary*.

THE *Rain-Deer* of *Lapland* are of wonderful Service to the Inhabitants of that Country, who bring them up to be tame and tractable, feed upon their Milk and Flesh, make Cloaths of their Skins, and use them to draw Sledges, in which they travel over the Snow with prodigious Swiftneſs. This Creature is ſomewhat leſs than a Stag, has two branch'd Horns, and long rough Hair under his Neck. His Colour inclines to an Aſh, but his Haunches and Shoulders, and the Parts under his Belly are white. Their Feet are thick, ſhort, and cloven; and when they walk their Joints make a Sort of Noiſe like the clashing of Stones one againſt another. Their ordinary Food is Moſs, and with this Suſtenance only they will perform Journeys of eighty or a hundred Miles a Day.—The Sledges, in which the *Laplanders* are drawn by the *Rain-Deer*, are ſhaped like Boats, only they are flat behind, and not pointed, as they are before. The Bottom of the Sledge is convex, that it may ſlide with more Eaſe over the Snow; and the Traces are faſten'd about the

* Ancient Authors relate, that the Northern People catch the Elk by watching the Opportunity when it falls down of the Epilepſy, and laying hold of it before it recovers Strength enough to

put its left hind Foot in its left Ear, which cures it immediately; and it is that particular Hoof, ſorſooth, which is the applauded Remedy for the Falling Sickneſs.

Neck

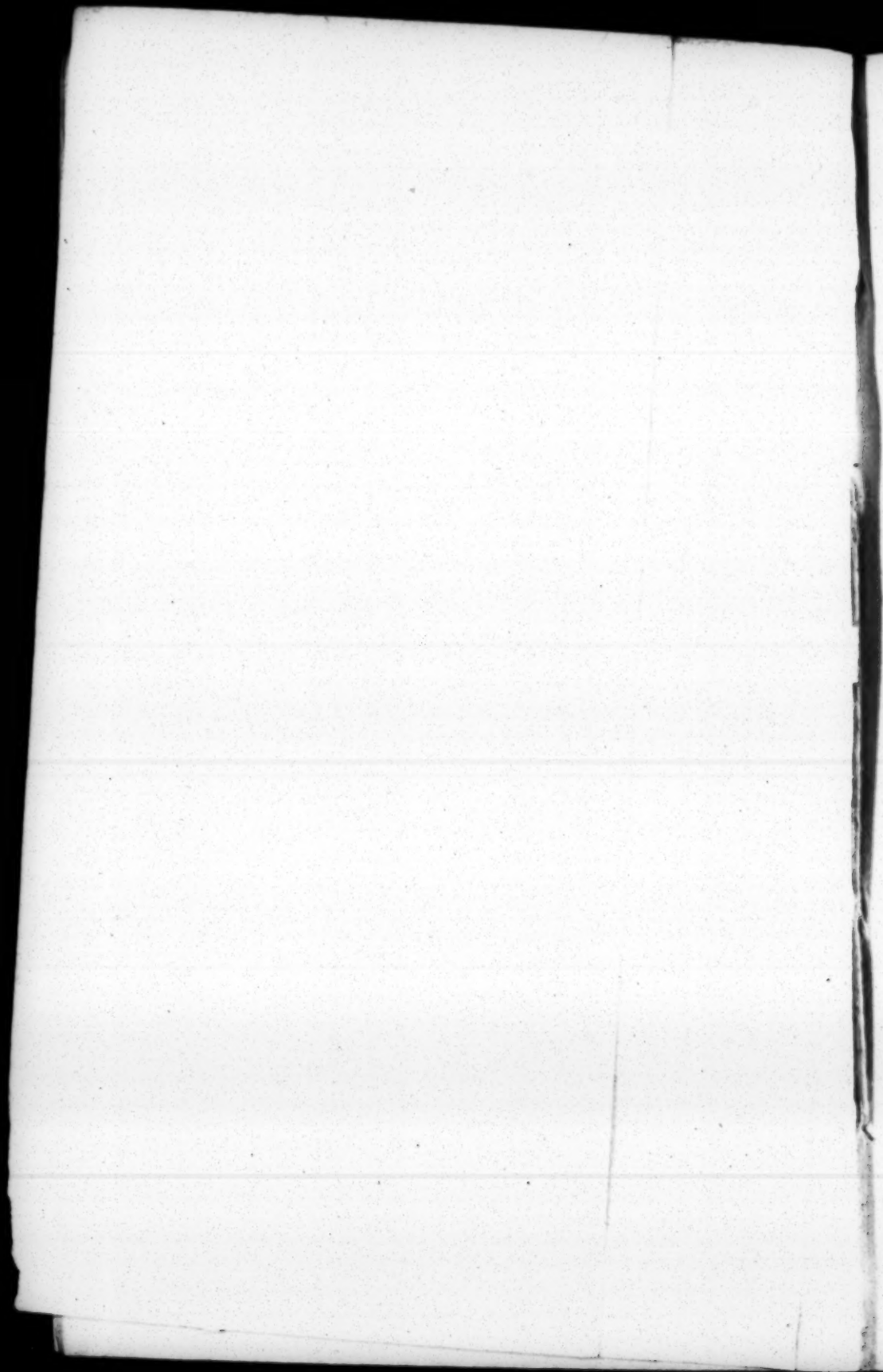




A Laplander Travelling over deep Snow



in Snow, in a Sledge drawn by a Rein Deer.



Neck of the Animal, going down his Breast and between his Legs. The Reins are tied to his Horns, whereby he is guided by the Traveller, who by the Motion of his Body and the Help of his Hand takes care to balance the Sledge, and prevent its overturning, of which it is often in Danger by reason of the Roundness of its Bottom. They hang Bells to the Trappings of the Rain-Deer, with which those Animals are much delighted. — When the *Laplanders* go a hunting, they use a Sort of Skates, which are flat Boards, four or five Feet long, pointed at each End, and turn'd upwards before; and having a long Pole in their Hands, with a Piece of Board fasten'd to the End of it, that it may not sink too deep into the Snow, they run over it with great Swiftnefs, so as to go fifty or sixty Miles a Day without any Fatigue.

THE *Sable Mice* of *Lapland*, which are the same with those call'd *Norway Mice* by *Olaus Wormius*, deserve the Attention of the Curious. They are near as large as a small Squirrel, but have no Tail; their Skin is streak'd and spotted with Black and light Brown; and they have two upper Teeth, and as many under, which are very sharp and pointed. They have Feet like those of Squirrels, and are so fierce, that if a Stick be held out to them they will bite it, and hold it so fast that one may swing them about in the Air. In their Marches they keep a direct Course, generally from North-East to South-

South-West, and each Troop consists of a great many Thousands, who march in Lines some Yards long, and parallel to each other. They march by Night, or in the Twilight, and lie still by Day; and if they meet with any thing to interrupt their Course, they do not turn out of their Lines, even though it be a Fire, a deep Well, a River, a Lake, or other Obstacle, but without Hesitation venture through it, by which means vast Numbers are sometimes destroy'd. If they are met swimming over Lakes, and forced out of their Course, they presently return into it again; and when they are stopp'd in the Fields they raise themselves upon their hinder Feet like a Dog, and make a Kind of Barking or squeaking Noise, leaping up as high as a Man's Knee, and defending their Line as long as they are able. If a House happens to be in their Way, there they stop till they die; for they never come into Houses, or meddle with the Food of the Inhabitants. Through a Stack of Corn they will eat themselves a Passage, and when they march through a Meadow, they damage it much by eating the Roots of the Grass; but if they encamp there by Day they quite spoil it, making it look as if it were burnt or strew'd with Ashes. These Creatures are very fruitful, but their Breeding does not hinder their March; for some of them have been observ'd to travel with a young one in their Mouths, and another upon their Backs. The Roots of Grass, with rotten Wood, and
the

the Insects contain'd in it, are their chief Food; and during the Winter they lie under the Snow, having Breathing-Holes at top, as the Hares do and other Animals.

INHABITANTS of LAPLAND.

BEFORE we take leave of *Lapland*, it may not be amiss to give some Account of its Inhabitants, as they are in many Respects a very remarkable People, and far different in their Manners and Customs from other Nations of *Europe*. With respect to their Stature, they are the shortest Men in all the North, being seldom above four Foot and a half high, and some of them even under that Size. Their Aspect is generally homely, having a large Head, hollow Eyes, a broad Face, a flat Nose, and short black Hair. They have broad Breasts, slender Waists, and small Legs, but are very strong, swift, and nimble. The Women are somewhat handsomer than the Men, having black Eyes, and a Complexion mix'd with a natural Red and White, which is not disagreeable. They are superstitious, timorous, and passionate, and have only confused Notions of Christianity; but they are charitable and hospitable to Strangers. Hunting and Fishing are their chief and almost only Employments.

THE Flesh of the Rain-Deer, their Milk, the Cheese they make of it, and the Fish they take in their Seas, Lakes, and Rivers, are the principal

cipal Part of their Food. Brandy, and other spirituous Liquors, they are very fond of; but their usual Drink is Water, of which they have a Kettle always over the Fire in Winter; and they also drink the Broth of Fish and Flesh boil'd together. In Summer they wear a close Garment made of coarse Wool, of a light-grey Colour without Dying, which reaches down to the Middle of their Legs; and round them they wear a Belt or Girdle, at which hangs a Knife, and a Pouch, wherein they keep their Flint, Matches, Tobacco, &c. Their Winter-Cloaths are the Skins of Rain-Deer with the Hair inwards, of which they also make Shoes, Boots, Caps, and Gloves; and the Nerves of the Animal serve them for Thread. The Women's Apparel is not much different from that of the Men; but they have more Trinkets hanging to their Girdles, such as Chains, Rings, Knives, a Needle-Case, &c. weighing sometimes twenty Pounds.

THE Habitations of the *Laplanders* are rather Huts than Houses, consisting of Pieces of Timber or Rafters join'd together, and cover'd with Turf or the Branches and Bark of Pine-Trees. They have no Chimneys but a Hole at the Top of the Hut, which serves to let out the Smoke, and to admit the Light. In some Parts of the Country they build their Store-houses on Trees, to secure their Provisions from Bears and other wild Beasts.

THE

THE *Laplanders*, in Hunting, make use of Bows about three Yards long, in handling of which they are very dextrous, being train'd up to it from their Infancy; infomuch that some of them will shoot an Arrow into a Circle no bigger than a Farthing, at such a Distance as they can but just discern it. For the larger Sorts of Beasts they sometimes use Fire-Arms and Spears, or dig Pits for them to fall into; others they take in Traps, catch them with Dogs, or kill them with poisonous Baits. They account the Flesh of the Bear a great Rarity; and he that kills one is distinguish'd by Laces round his Cap wrought with Tin-Wire, on which Occasion they make great Feasting.

WHEN a *Laplander* has a mind to marry, he looks out for a young Woman possess'd of a great many Rain-Deer, in which the Riches of these People chiefly consist; and it is the Custom for Parents to give their Children some Rain-Deer as soon as they are born, which, with all their Increase, belong to them ever after. The more of these Animals a Maid has, the sooner she may expect a Husband, for the *Laplanders* do not much regard Beauty or other Qualifications. As to the poorer Sort, they are content to marry a Man's Daughter who lives in a convenient Place for Fishing and Hunting.—When the Suiter goes to pay his first Visit to the Woman he intends to marry, he is accompanied by some of his Friends, one of whom is to negotiate the Matter, and carries with

with him some Bottles of good Brandy or other spirituous Liquor. Being arrived at the Hut, they are all invited in except the Suiter, who stays without for some Time, till the Company have drank round, and his Friend has made the Proposal to the young Woman's Parents. The Man is then call'd in, and takes a Dram or two with the Company, but without seeing the Girl, who in the mean time is sent abroad. If the Father consents that the young Man may pay his Respects to his Daughter, he goes out of the Hut to his Sledge, puts on his best Apparel, and returns to salute his Mistress with a Kifs; after which he makes her a Present of a Rain-Deer's Tongue, and some other Trifles, which she refuses to receive in the Presence of her Relations; but going out of the Hut with him, she accepts them. The Lover then desires her to let him sleep near her in the Hut, which if she grants, the Marriage is as good as concluded; if not, she throws the Presents on the Ground, as a Mark of her Refusal. After Marriage the Bridegroom is obliged to serve his Father in-Law a Year, before he takes away his Wife and her Patrimony of Rain-Deer, at which Time all the Friends make Presents to the new-married Couple.

Soon after a Child is born, they wash it with Snow or cold Water, and then wrap it up in the Skin of a Hare. The Women do not keep their Bed above four or five Days, and as soon as they have recover'd Strength, they

they set out with the Child at their Backs to have it baptized, for which Purpose they are often obliged to take long Journeys. Their Cradles are made of a Piece of hollow Timber, like a small Boat; in which the Child is laid upon a Kind of soft fine Moss, and cover'd over with the tender Skin of a young Rain-Deer. The Cradle is suspended by a Rope from the Roof of the Hut, and by tossing it to and fro they lull the Child to Sleep.

THE *Laplanders* have no Physicians amongst them, nor indeed have they much Occasion for any, as they are very seldom afflicted with Sickness. For the Cure of all inward Distempers they make a Drink of a certain Moss which they call *Jerth*, or instead of that chew the Root of Angelica, or boil it in Rain-Deer's Milk. When they feel a Pain in any Part of their Body, they take a Kind of Fungus or Mushroom growing upon the Birch-tree, and, having set Fire to it, they apply it burning-hot to the Part affected; and this occasions a Blister, which they imagine draws off all the bad Humours. For Wounds they have no other Remedy but the Resin that oozes from the Fir-Tree; and when they have any Member frozen, they run a red-hot Iron into a Cheese made of Rain-Deer's Milk, and with the Fat that drops from it anoint the Part, which by that means is almost instantly cured.

As to their Funerals, if a deceased *Laplander* was rich, his Corpse is wrapp'd in Linen; but

if he was poor, he has only a woollen Shroud. They put into the Coffin along with the Deceased a Flint and Steel and a Hatchet, which they imagine he may have Occasion for in his Journey to a Place of Rest. But this is only the Practice of those who are still *Heathens*, or have very gross Notions of the *Christian* Profession. The Corpse is drawn in a Sledge by a Rain-Deer to the Place of Burial, after which the Creature is kill'd to make a Funeral Entertainment, to which all the Friends and Relations of the Deceased are invited.

MANY Stories are told of the Wizards or Conjurers of *Lapland*, who pretend to foretel future Events, and are thought to have a Power of inflicting Diseases on whom they have a mind on which Account they are held in great Veneration by the poor ignorant *Laplanders*, who take all imaginable Care to avoid their Anger: But Stories of this Kind are neither to our Purpose, or worth repeating; and therefore we proceed to consider some of the Buildings of *Sweden*, with which Article we shall conclude this Chapter.

BUILDINGS.

IN this Northern Country we find but few Buildings that are so elegant or magnificent as to deserve particular Notice. Several of the Churches in *Stockholm* are very large and handsome Structures, built with Brick, and cover'd with

with Copper; but the Cathedral of *Upsal* is reckon'd the finest Church in the whole Kingdom. This is also cover'd with Copper, and is adorn'd with stately Monuments of some of the Kings of *Sweden*, and other great Persons, whose Remains were their deposited. In the Chapel behind the Altar stands the Monument of King *Gustavus* in Marble, between the Statues of his two Wives, who are likewise there interr'd: And in another Chapel is the Tomb of King *John's* Wife, who was the Mother of *Sigismund III.* King of *Poland*. It is of white Marble, and of excellent Workmanship, which may be also said of the other Monuments in general.

THE Cathedral of *Lunden* is a magnificent Structure, and has a very lofty Spire, which serves as a Mark for Sailors, being seen at a great Distance. The Altar of this Church is a beautiful Piece of Work; but what most engages the Attention of a Stranger is its curious Clock, which for the Number of its Movements and Figures may vie with those of *Lyons* and *Strasburg*. Every Hour two Horsemen come out and encounter, and a Door opens, which discovers the Virgin *Mary* sitting on a Throne with *Christ* in her Arms, and the *Magi* with their Retinue marching in order and presenting their Gifts, two Trumpeters sounding all the Time of the Procession. This Clock, besides the Hour, shews the Month and Day, and every Festival throughout the Year: But

however ingenious the Mechanism of these celebrated Clocks may be, we are inclined to think that Pieces of Clock-Work equally curious and wonderful, if not more so, have lately been made in *England*.

As *Sweden* affords us so little that is remarkable under this Head, we shall detain him no longer in that Country, but conduct him cross the *Baltic* into the Kingdom of *Poland*.

CHAP. X. Of POLAND.

Fossils.

THIS Country is of a great Extent, and the Soil is generally fertile, fit for Tillage and Pasture, so that it produces abundance of Corn, and feeds vast Numbers of Cattle. It is rather flat than mountainous, except on the Side of *Hungary*, from which it is separated by a long Chain of craggy Hills call'd the *Crapack* or *Carpathian* Mountains. Some of its Mountains afford Mines of Silver, Copper, Lead, and Iron; but the most considerable of all are the Salt Mines in the *Lesser Poland*, which are the chief Riches of the Country, and make one of the best Branches of the King's Revenue.

Revenue. These Mines are near a little Town call'd *Wilizka*, a few Leagues from *Cracow*, and have now been open'd near five hundred Years, being first discover'd in 1251. There are several Descents into them, the two principal whereof are in the Town itself, through which the Salt is drawn up; the rest serve to let down Timber and other Necessaries. Above Ground there is a large Wheel, turn'd round by a Horse, with a strong Rope as thick as a Man's Arm; to this is fasten'd another Rope, which a Man ties round him in such a Manner as to sit in it, and take another Person in his Lap; whereupon the large Rope being let down a little way, a second Rope is fasten'd to it, on which another Man seats himself, taking likewise one in his Lap; and he being lower'd a little, gives Place for others to succeed him. Thus thirty, forty, or more, are let down at a time to the Depth of a hundred Fathoms, where they come to Ladders, by which they descend a hundred Fathoms lower, the Earth in the several Passages being supported with strong Timber. Here a Stranger is surprized to find a Kind of subterraneous Commonwealth, consisting of a great many Families, having their peculiar Laws and Polity, and even publick Roads and Carriages, Horses being employ'd to draw the Salt to the Mouths of the Mine, where it is taken up by Engines. These Horses, when once they are down, never see the Light again; and indeed many of the People seem to be buried alive in

this strange Abyss, some being born there and never stirring out, though others have frequent Opportunities of breathing the Village Air, and enjoying the Light of the Sun. It also raises a Traveller's Admiration, to behold in this capacious Mine a long Series of lofty Vaults, sustain'd by huge Pillars of Rock-Salt cut with the Chissel, which, by the Light of Flambeaux incessantly burning appear like so many Crystals or precious Stones of various Colours, casting a Lustre which the Eye can hardly endure.—The Salt is hewn out of the Mine in large cylindrical Pieces, the Workmen using Hammers, Pick-Axes, and Chissels, much as in our Stone Quarries; which Pieces, when drawn up to the Top, are broken into Fragments fit to be thrown into the Mill, where they are ground into a coarse Sort of Powder, serving all the Purposes of our common Salt. However, it is proper to observe, that the Salt dug here is of three Kinds, the first a coarse blackish Salt, the second a little finer and whiter, the third very white and clear as Crystal, which is properly the *Sal Gemmæ* of the Druggists, and is frequently used for Toys, Chaplets, little Vases, &c.—But we must not forget to mention one of the greatest Wonders of this Salt-Mine, which is a Rivulet of fresh Water running through it, sufficient to supply all the Occasions of its Inhabitants, who are not less than a thousand People.

THAT

THAT beautiful transparent Substance call'd *Amber* is found plentifully on the Coasts of *Prussia**, concerning the Nature and Origin whereof there has been a vast Diversity of Opinions, some referring it to the Mineral, others to the Vegetable, and others to the Animal Kingdom†. There is, however, little Doubt to be made, but that it is wholly of mineral

* *Amber* is found in several Part of *Europe*, but no where in such Abundance as in *Prussia*, both dug out of the Earth and fish'd out of the *Baltic Sea*: The Coasts of *Pomerania*, *Samogitia*, *Courland*, and *Livonia*, afford it in considerable Quantities; and it has been often dug up in *Denmark*. It is met with in some Parts of *France* and *Italy*, nor is our own Country without it; for *Dr. Woodward* mentions several Places where it is found in *England*, and *Mr. Hill* tells us he has pick'd up some fine and beautiful Pieces on the *Yorkshire Coast*. The Neighbourhood of *London* also affords some that is tolerably fine, as the last mention'd Gentleman observes, who has had a Piece of *Amber* wrought, and wears it in the Head of a Cane, near

three Inches long, which he found in the great Tile-Clay Pit behind *St. George's Hospital* at *Hyde-Park-Corner*.

† *Pliny* describes *Amber* as a resinous Juice, oozing from aged Pines and Firs, and thence carried into the Sea, where it undergoes a Change, and is then thrown again upon the Shore. The Opinion of this ancient Naturalist has been espoused by many of the modern ones, some of whom to this Day suppose *Amber* to be a vegetable Refin. Others have imagined it a Concretion of the Tears of Birds, others the Urine of a Beast, &c. but we make no Scruple to join with those who look upon it as belonging to the mineral Class of Bodies, and accordingly speak of it under the Head of Fossils.

Origin,

Origin, and is a Bitumen once liquid, much like *Naphtha* or *Petroleum*, harden'd and brought into its present State by a mineral Acid of the Nature of the Spirit of Sulphur or Oil of Vitriol, both these Substances abounding in the Earth, and an artificial Mixture of them producing a Body very much resembling the native Amber. This Fossil is of a fine, uniform, and regular Texture, very light, yet heavy enough to sink in Water, is naturally of a rough Surface, yields a fragrant Smell when rubb'd, and is endued with the Property of attracting light Bodies, which from its Name (*Electrum*) is call'd *Electricity*. It is found in various Shapes and Sizes, but its most usual Standard is between half an Inch and three Inches in Diameter. Its natural Colour is a very beautiful pale Yellow, but it is subject to be alter'd from this by heterogeneous Mixtures of metalline or earthy Particles, receiv'd into it while not yet perfectly harden'd. Hence it is sometimes white, sometimes brown, and sometimes even black and opake, in which last State it is preferable to the finest Jet, though some say there is no such thing as black Amber; and sometimes, but rarely, it is found tinged with a reddish or greenish Cast, and yet as pellucid as the common Amber. It is considerably hard, breaks with a smooth Surface, and even in the largest Pieces is very transparent.

In *Prussia*, where vast Quantities of Amber are dug out of the Earth, it lies usually below
five

five Strata in the following Order. The uppermost is a coarse yellow Sand; the second a whitish Clay; the third a blue Clay; the fourth a Substance resembling Wood, but made up of several Flakes lying over one another; the fifth a Stratum of the Pyrites, or a Kind of vitriolic Ore; and the sixth another of yellow Sand, amongst which the Amber lies, and is extracted with convenient Instruments. Besides this, there is Plenty of Amber found in the *Baltic Sea*, which the Country People take up with Nets, and this is call'd *fish'd* or *draught* Amber; what is gather'd on the Shore from among the Weeds and Sand being distinguish'd by the Name of *pick'd* Amber, and what is dug out of the Earth by that of *fossil* Amber. These however are not three distinct Species of Amber, but undoubtedly form'd in the same Manner; that found in the Sea or thrown upon the Shore being probably carried thither by the Rivers, or wash'd by the Waves in tempestuous Weather from amongst the Rocks, and those subterraneous Places where Amber is produced and nourish'd.

NATURE seems to have been very curious in the Formation of Amber, the Lumps of it being frequently shaped like Pears, Almonds, Pease, &c. and the several Figures and Representations observed in some Pieces of Amber are also surprising: But what is most wonderful, and difficult to account for, are the several Animals, Leaves, &c. which are sometimes found

found buried in this Fossil. *M. Hartman*, who has given us a History of the *Prussian* Amber, reckon'd above thirty Species of Insects inclosed in Pieces he was possess'd of, as Flies, Spiders, Ants, Bees, Beetles, &c. and some Authors mention Frogs, Lizards, and small Fishes inclosed in Amber, but the Truth of this may be suspected*.

How these Animals come to be immers'd in Amber, is a Question much agitated amongst the curious Enquirers into the Works of Nature. Some have endeavour'd to account for it by supposing Amber to have been of vegetable Origin, as if Animals could more easily be entangled in the resinous and gummy Juices of Trees; but this is not supported by Experience, for Insects are seldom or never found

* It is certain, some Artists have a Method of inclosing these Animals in Amber; to distinguish which from those that are so entomb'd by Nature, we may observe, that in the former the Insect is not far from the Surface, but in the latter it is in the Center; for the Amber-Polishers could not so well conceal their Art, if they put their Animals in the superficial Parts of the Amber, where the Transparency would the more rea-

dily discover the Cheat. If the Amber wherein Animals are inclosed be solid, clear, free from Cracks, and without a Contexture of different Crusts, it is a sure Sign of its being artificial; for the Parts of Amber, wherein Insects are naturally repositied, (as *M. Hartman* a thousand times observ'd) either cohere like Bark, or are intersected every way with Fissures, in which some Parts of the Animal appear externally.

inclosed

inclosed in such Juices, but only adhering externally to their Surface. Others again have denied them to be real Insects, but any one may be satisfied of the contrary by viewing such a Piece of Amber when cut or broken, for evident Traces of the little Animals still remain.—Insects thus found in Amber are indeed an unquestionable Proof of its having been once in a liquid State, and the better to understand how they came to be inclosed in it, we need only reflect (says M. *Hartman*) that it is usual for them in rigorous Seasons to seek for Shelter and sleep in Caverns, where they are cover'd and buried in the bituminous Matter which afterwards hardens into Amber. And on this Occasion we are to consider (as Mr. *Hill* observes) that all the Pieces of Amber which contain Flies, and other Insects are of that Kind which is pick'd up on the Sea-Shore, very few Accounts that can be depended upon having yet been given of any dug out of the Earth with such Animals inclosed. Now as the native liquid Bitumens are continually trickling down the Outsides of Rocks and Hills, and as some of this Matter may be lodg'd in small Cavities or otherwise detain'd on the Surface of the Earth, where it may leisurely be changed into Amber, it is not much to be wonder'd at if Flies and such-like Insects are sometimes inclosed and bedded in a Fossil form'd after that Manner.

THE People who live on the *Prussian Coast*, and in other Places where Amber is produced, observe, that Ravens, Crows, Affes, Sheep, and several other Animals are extremely fond of it; and that Pieces of it are frequently found in their Excrements, and in their Bodies when oper'd. It is in considerable Repute for its medicinal Virtues, being used in Fumigations to remove Defluxions, and its Fumes receiv'd at the Mouth are often successful in the Beginning of a Quinsy. In the Time of the Plague, those who work in Amber at *Koningsberg* are said never to be infected; whence it is look'd upon as a Preservative against Contagion: And taken in Powder it is diuretic, expels Gravel, and promotes the *Menses*.

As to the Electricity of Amber, or its Power of attracting Straws, Paper, and other light Bodies, it is really very surprizing; but the same Property is also found in Jet, Glass, Sealing Wax, most Kinds of precious Stones, and in all resinous and bituminous Substances*. This Species of Attraction differs from Magnetism in this, that the latter only attracts Iron

* Some distinguish Electricities into two Kinds, namely, *attractive Electricity*, or that which belongs to Glass; and *repulsive Electricity*, or that which belongs to Amber, Resin, Wax, Gums, and such-like Substances. That

they are different Kinds seems evident from their contrary Effects; for the light Bodies repell'd by one will be attracted by the other, which cannot happen when both Bodies have the same attractive Power.

or Steel, whereas Electricity attracts most Sorts of Bodies indifferently, though the Effect be only sensible in light ones. From the Experiments made by divers Philosophers to determine the Nature and Laws of Electricity, it appears, 1. That electrical Bodies do not attract at all, or very rarely, except they be warm'd by Attrition, and thereby disposed to emit their Effluvia more copiously. 2. These Bodies when warm'd by Fire do not attract so forcibly as when heated by Rubbing; but if they be first warm'd by Fire, and then rubb'd, they attract the more strongly. 3. The Interposition of the finest Linen, as Muslin, or the like, will totally hinder the Operation of electrical Bodies, tho' the Virtue penetrates the Pores of Glass. 4. The Sphere or Extent of this attracting Power varies with the State of the Weather, the Attraction being stronger in hot and dry Weather than it is in cold and moist. 5. This Virtue may be communicated to the Distance of seven or eight hundred Yards by the Intervention of a proper Body, as hempen Strings, &c. Electrical Bodies sometimes alternately attract and repel others to a considerable Distance, and with great Velocity; but in some Cases the Body once repell'd will not be again attracted till it has first touch'd some other Body. 7. If the Sphere of Attraction be interrupted in any Part, it destroys the Efficacy of the Whole. 8. This Virtue will exert itself *in Vacuo*, but not so strongly as in the open Air. 9. It may be ex-

cited to such a Degree as to appear lucid, and sparkle like Fire in a dark Room. 10. It may also plainly be felt on the Face or Finger, striking against it like a Puff of Wind; and it is sensible to the Ear by a crackling Noise, like that of burning Charcoal.—These and several other wonderful Phænomena of Electricity have been discover'd by the Experiments of Mr. Boyle, Mr. Hawksbee, Mr. Gray, the Abbé Nollet, and other Virtuosi, which have of late been publickly shewn in divers Parts of *England* with an *Apparatus* contrived for that Purpose*.

WE have dwelt the longer on this Subject, as it is one of the most curious in Natural History and Philosophy, and the most entertaining we shall meet with in *Poland*. The Vegetables of this Country are too common to require a Description; nor shall we have much to say under the Article of Animals.

* Mr. Martin observes, that the Uses of this wondrous Virtue of Electricity has not yet been discover'd; but Mr. Gray, a little before his Death, hit upon an Experiment which seem'd to indicate, that the attractive Power which regulates the Motions of the Heavenly Bodies, is of the electric Kind. The Experiment was this: He fix'd a large Iron Ball upon a great Cake of

Rosin and Wax, and exciting the Virtue strongly in the Cake, a fine Feather suspended by a Thread, and held near the Iron Ball, was carried round it by the Effluvia in a circular Manner, and perform'd several Revolutions. It moved from West to East, as the Planets do; and its Motion, like theirs, was not quite circular, but a little elliptical.

ANIMALS.

ANIMALS.

THE Woods and Forests of *Poland* abound with Hares, Deer, Foxes, Bears, Wolves, and Boars; and they have also Plenty of Elks, wild Asses, wild Bulls or *Uri*, and Buffaloes, whose Flesh the *Poles* reckon a great Dainty. In the *Ukrain* they have likewise wild Horses, whose Flesh is equally esteem'd. The Wolf resembling a Hart, or the *European Lynx*, call'd by the Natives *Ris*, with Spots on its Belly and Legs, yields the best Furr of any Animal in *Poland*, though there are several others which are hunted and kill'd for the sake of their Skins only. In *Podolia* there is a Sort of Quails that have green Legs; but their Flesh is reckon'd unwholesome, and said to give People the Cramp if too frequently or immoderately eaten.

THEIR Method of hunting and taking the wild Bulls is as follows: A great Number of Horsemen surround the Bull, one of whom rides up and throws a Dart at him, upon which the enraged Animal pursues his Enemy, but being wounded by another behind, he faces about to pursue the latter; and thus by turns they so harass him, that being quite tired with defending himself against so many Assailants, he falls down, and is easily taken. Another Way of taking these Beasts is by felling a great many Trees, and thereby inclosing them so that they cannot easily escape. When a Bull is thus surrounded,

N. 2

rounded, each Hunter having his proper Post throws Darts at him, and whilst the Bull runs towards one of them, another from behind gives him a mortal Wound. If he chance to break through the Inclosure, and any of the Hunters are in Danger, the Man he runs at holds out a Piece of red Cloth, against which the Beast having an Antipathy, he immediately leaves that Person, and makes towards another, who, being provided for him, commonly kills or disables him.—Bears, and those of the largest Size, they frequently take alive with Nets; in which one of them being entangled, the Sportsmen ride up to him, pin down his Head and Feet with great wooden Forks, and bind him so fast with strong Cords that he is not able to stir, but the Knots are so contrived that with one Pull they may be untied. Having thus secured the Bear they put him into a great wooden Chest, where they keep him, and turn him loose when they have a mind to have the Diversion of Hunting.—We now proceed to give some Account of the Buildings of this Country.

BUILDINGS.

MOST Travellers informs us, that many of the Churches and other publick Structures in *Poland* are very beautiful and magnificent, but in the Descriptions of them they are not so particular as might be expected. In
Warsaw,

Warsaw, the Capital of the Kingdom, the principal Church, dedicated to St. *John* the Baptist, is a noble Fabric and richly adorn'd; besides which there are several others worth Observation. The Palace in that City, where the Kings of *Poland* usually reside, and the General Dyet of the Kingdom assembles, is a large square Pile of Buildings, begun by *Sigismund* III, and enlarged and beautified by his Successors. The King has another Palace in the Suburbs, amidst delightful Groves and Gardens; and not far from it there is a small Chapel erected in Memory of a Victory gain'd over the *Muscovites*, in which there is a fine sepulchral Monument of *Demetrius* *Suiscius*, Great Duke of *Muscovy*, who being taken Prisoner, died a Captive in *Poland*.

IN the City of *Cracow* there are several magnificent Structures, and particularly the Castle, which is a Mile in Compass, wherein the King has a noble Palace built of Stone, having a square Court within it, and Galleries running round the Outside supported by Marble Pillars. The Royal Apartments are adorn'd with fine Paintings and Statues, and from the North Gallery there is a charming Prospect over the neighbouring Country. Within this Castle stands the Cathedral dedicated to St. *Stanislaus*, a majestic Structure, wherein the Kings of *Poland* are crown'd and usually interr'd, and where are preserv'd the Relicks of that Saint, the ancient

Bishop and Patron of the Nation; who being murder'd in this Church in the eleventh Century by *Boleslaus* the Bold, the King and Nobles walk in Procession to his Shrine the Day before the Coronation, to expiate the Crime; and several Kings have offer'd Vessels of Gold and Silver at his Tomb. *Sigismund* I. built a Silver-Altar over it, with golden Crucifixes; and to the Priests who serve at it he gave many rich Vestments embroider'd with Jewels.

THE Cathedral of *Gnesna*, formerly the Metropolis of the Kingdom, and now the See of an Archbishop who is Primate of all *Poland*, is a fine ancient Fabric, and is remarkable for its Gates of *Corinthian* Brass exquisitely wrought, which, it is said, belong'd formerly to a *Greek* Monastery in the *Morea*, and were brought from thence by King *Boleslaus* the Second. In this Church there is a vast Treasure of Gold, Silver, and curious enamell'd Vessels, given to it by several Kings and Archbishops. The Tomb of one of its Prelates, viz. *St. Adelbert*, was cased with Silver by *Sigismund* the Third; and Archbishop *Firley* added to its Treasure many costly Vessels and Vestments, particularly his own Mitre, valued at two thousand Pounds Sterling.

THE City of *Posna* or *Posnan*, which lies West from *Gnesna*, has also a stately Cathedral, dedicated to *St. Magdalen*, where they shew the Tomb of Duke *Miecesslaus*, who introduced Christianity

Christianity into *Poland*. It has likewise several other handsome Churches, and a large Townhouse of excellent Architecture; but no Building of that Kind in the Kingdom is equal to the Townhouse of *Tborn*, which is reckon'd one of the finest in *Europe*.

WE shall conclude with *Dantzick*, the Capital of *Polish Prussia*, and a City of very great Trade, which is adorn'd with many noble Structures, particularly *St. Mary's Church*, which is remarkably grand and beautiful. It has several thousand Windows, forty-eight Altars, and a Font, made at *Antwerp*, which cost about five thousand Pounds Sterling. The Town House is also magnificent, and has a lofty Spire; but this and other fine Buildings were much damaged by the Bombs and red-hot Balls of the *Russians*, when they besieged *Dantzick* under Count *Munich* in 1734, in order to drive out King *Stanislaus* and his Adherents, who had taken Shelter in that City.

CHAP. XI.

Of MOSCOVY, or the RUSSIAN Empire.

THIS vast Empire is partly in *Europe*, and partly in *Asia*, extending from the Confines of *Sweden* and *Poland* to those of the *Chinese Tartary* and the Sea of *Japan*, which several Geographers compute to be 1500 Leagues. The *Asiatic* Part consists chiefly of *Siberia*, a prodigious Tract of Land so call'd since the *Russians* have been Masters of it, mostly inhabited by a People of *Tartarian* Race, intermix'd with some Colonies of *Russians* which have been settled in the great Towns, and the Descendants of such State-Prisoners and others as have been banish'd into that remote Country. Geographers indeed are divided with respect to the Limits of *Siberia*, some of them placing Part of it in *Europe*; and *Samojedia* lies also in *Europe* as well as in *Asia*: So that the little we shall have to say of these Countries, of which large Tracts are barren and desolate or to us unknown, will more conveniently be added here to the Account of the *European* Part of the *Russian* Empire, than reserved till we come to *Asia*, where it would scarce be sufficient for a distinct Chapter.

FOSSILS.

FOSSILS.

SEVERAL Parts of this great Empire are well furnish'd with Mines of Iron, and particularly at *Alonitz* near the Lake *Ladoga* they dig vast Quantities of Ore, which yields Iron of such a Temper, that it may be brought (they say) to be as durable as Brass. The Mines of *Siberia* likewise afford great Plenty of excellent Iron; and some Mines of Silver have lately been discover'd in that Country, from whence the *Russians* draw no inconsiderable Treasure. They have also abundance of Sulphur and Saltpetre, with which they make their own Gunpowder, and in Time may probably export large Quantities of it, having much more than sufficient for their own Use: And perhaps they may shortly be in a Capacity to furnish Foreigners with Fire-Arms, as Labour is cheap, and they have Plenty of Iron.

WE have already had Occasion to take some Notice of a Species of Talc, the *Lapis Specularis* of the Ancients*, commonly known amongst us by the Name of *Moscovy-Glass*, being brought to us from that Country, where it is found in great Abundance†. It is a beautiful

* See Vol. I. p. 248.

† This Fossil is found in many Parts of the World besides *Russia*, particularly in

the Island of *Cyprus*, where it lies in great Quantities about four or five Feet under the Surface, almost through-

Fossil, of an equal, regular, and elegantly laminated Structure; and is usually found in Masses, ten or twelve Inches in Breadth, and from half an Inch to three Inches in Thickness. These are of a smooth and even Surface, except at their Edges, where the Joinings of the various and innumerable Plates or Flakes of which it is composed make a Multitude of thin Ridges; which being separated by getting the Edge of a Knife between them, or other Means, the Mass readily splits, with proper Care, into very thin *Laminae*, of an exceeding Brightness and Transparency. Its Colour is a fine clear White, resembling that of the purest white Glass; but there is another still more elegant Species of this Fossil call'd *Red Talc*, found in *Moscovy* and *Persia*, and no where else so far as is yet known; which, though reddish in the Masses, is seldom brought to us except in such thin Plates as to have no Remains of its Colour distinguishable. The Ancients (as we have observ'd) made Windows of this pellucid Stone, and at present it is used by the Miniature-Painters to cover their Pictures, the best Sort of Lanthorns are made of it instead of Horn, and minute Objects are usually laid between two Plates of it for Examination by the Microscope.

out the whole Island. We have it also from *Africa* and *Arabia*, and of late it has been discover'd to abound in the *Alps*, the *Apennines*, and many of the Mountains of *Germany*.

THE large Teeth and Bones dug up in *Siberia*, (commonly call'd *Mammuth's Bones*) are one of the greatest Curiosities of this Country, and have employ'd the Thoughts and Pens of Sir *Hans Sloane*, Dr. *Breynius*, and other learned Men, who make no Doubt of their being the Teeth and Bones of Elephants; and in reality these Teeth, or Tusks, if not too much corrupted by lying in the Ground, are sold and used as Ivory all over *Russia*. Amongst many other Rarities of this Kind Sir *Hans Sloane* has a Tusk found under Ground in *Siberia*, which is of a brownish Colour, and hollow at the Bottom like other Elephants Teeth, one of which it plainly appears to be. From the Basis, measuring along the outer Circumference to the small End, it is five Feet seven Inches long, and the inner Circumference is four Feet ten Inches. Measuring from the Inside of the Basis to the small End in a strait Line, the Distance is three Feet ten Inches and a half; and at the Basis, where thickest, it is eighteen Inches round, and six in Diameter. This Tusk weighs forty-two Pounds; but we have credible Accounts of some that have been three or four times that Weight, and even of some *Dentes molares*, or Grinders, weighing twenty or twenty-four Pounds apiece*.

* Here it is to be noted, that such Teeth and Bones as we are speaking of are likewise found in several other Countries besides *Siberia*, as *Poland*, *Germany*, *Italy*, *England*, *Ireland*, &c. but less common than in *Siberia*, and not so well preserv'd being more wasted and calcined (as is supposed) by the greater Warmth of those Climates.

Ludolphus,

Ludolphus, in the Appendix to his *Russian Grammar*, mentions these Teeth and Bones among the Minerals of *Russia*; and takes notice that the Natives believe them to be the Teeth and Bones of an Animal living under Ground, much larger than any that live upon the Earth's Surface. He adds, however, that the more sensible among the *Russians* affirm them to be Elephants Teeth, brought thither at the Time of the Deluge; and he himself, upon examining a Piece given him by one of his Friends, who had it from a *Russian* of Quality lately return'd from *Siberia*, found it to be real Ivory.

THE Account of these Teeth given us by Mr. *Ysbrand Ides*, in his Travels from *Moscow* to *China*, is very particular, the Substance of which is as follows. Amongst the Hills (says he) which are situated to the North-East of *Makoffskoi*, the *Mammuth's* Teeth and Legs are found, and more especially on the Banks of the *Jenisea*, *Lena*, and other Rivers, quite to the frozen Sea. In the Spring, when the Ice of these Rivers breaks, it is driven with such Violence as to undermine the Banks, and occasion Part of the adjacent Hills to fall down; and thus they discover the Teeth of these Animals. A Person, who used to go annually in Search of these Bones, accompanied our Author to *China*, and told him for a certain Truth, that he and his Companions found the Head of one of these Creatures where such a Piece of Earth had fallen down, and that with Difficulty they broke

Broke out the Teeth, which grew out of the Mouth like those of an Elephant. They likewise took some Bones of the Head, which appear'd reddish, as if stain'd with Blood; and afterwards found the fore Foot of the Animal, the Circumference of which was as large as the Waist of an ordinary Man.—There are different Reports (continues Mr. *Ides*) concerning this Creature. The *Tungusians*, *Ostiacks*, and other Heathens say, that the *Mammoth* lives continually under Ground, and that they often see the Earth heav'd up when the Beast is upon the March, which afterwards sinks down again, and makes a deep Pit or Cavity. They also believe, that if he comes so near the Surface of the Earth as to smell or discern the Air, he immediately dies; which (say they) is the Reason that several of them are found dead on the high Banks of the Rivers, where they come out of the Ground unawares. This is the Opinion of the Pagans concerning the *Mammoth*; but the old *Russians* of *Siberia* believe, that there were Elephants in that Country before the Deluge, when the Climate was warmer, and that their drowned Bodies were driven by the Waters into subterraneous Cavities, where they have ever since lain frozen, and so preserv'd from Putrefaction. But there is no absolute Necessity to suppose the Climate of *Siberia* was warmer before the Flood, since the Carcasses of drown'd Elephants might float thither from distant Countries.—Some of these Teeth are

quite black and broken, but those which are found are as good as Ivory, and are accordingly sent to all Parts of *Muscovy*.

THIS Account is confirm'd by Mr. *Laurence Lang*, in the Journal of his Travels to *China*, whither he went in 1715 with Dispatches from his *Czarish* Majesty. He takes notice of these Bones, as being found about the River *Jeniscea*, and towards *Mangasea*, along the Banks, and in the Pits occasion'd by the sinking of the Earth. He calls them *Maman* Bones, and informs us, that some of the Inhabitants are of Opinion they are no real Bones, but a Sort of fossil Horn which the Ground produces; and that others will have them to be the Bones of the *Bebemoth* mention'd in the Book of *Job*, the Description whereof they pretend is suitable to the Nature of the *Maman*; those Words in particular, that he *is caught with his own Eyes*, (as some render the Passage) agreeing with the *Siberian* Tradition, that the Beast dies upon coming to Light.

To these Accounts we shall only add another given by *Basilius Tatischow*, Director General of the Mines in *Siberia*, in a Letter to the Bishop of *Gottenburg**; wherein he mentions a large Horn, (as he calls it) or Tooth, weighing 183 Pounds, which he had made a Present of to his *Czarish* Majesty, and another

* This Letter was publish'd in the *Acta Liter. Suecic*, 1725.

which he presented to the Imperial Academy at *Petersburg*. He had likewise another, larger than either of the former, which he caused to be cut, and he himself wrought several Pieces of it, the Ivory being very good. Part of the Skull was corrupted by having lain in the Ground, and was so large, that it seem'd to him to be of the same Size with that of a large Elephant. He had also in his Possession a Grinder ten Inches long and six Inches broad, besides several Ribs, Shank-Bones, &c. found from time to time in that Country. The same Gentleman took no small Pains to enquire into those Pits and Hollows, which the Pagan Inhabitants of *Siberia* pretend are made by these Animals when they walk under Ground; and he found they were nothing but Caverns, such as are common in other mountainous Countries, and are made by subterraneous Rivers and Cataracts, which sometimes undermine the Places through which they pass, so as to make the Ground above them sink in, and form great Cavities.—Upon the Whole Sir *Hans Sloane* concludes, that though the Author has left the grand Question about the Origin of these Bones undetermined, yet his Observations seem to tend very much towards establishing the Opinion above-mention'd, that they are the Bones and Tusks of Elephants drown'd in the universal Deluge.

VEGETABLES.

THE most remarkable Production of this Kind in the *Russian* Empire (if the Accounts we have is true) is a Sort of Melon growing near *Astracan*, *Casan*, *Samara*, and other Places on the River *Volga*, call'd *Borometz* by the Natives, and by Naturalists the *Scythian* or *Tartarian Lamb*, as very much resembling that Animal. This is reckon'd a Zoophyte, or Animal-Plant, being supposed to partake both of a sensitive and vegetable Nature. It is shaped like a Lamb, having several Footstalks instead of Legs, and is said to consume all the Grass and Herbs round about it, after which it pines and dies away. The Skin of the Body is cover'd with a Substance exactly like Wool, short and curling, and being dress'd as Tanners usually do the fleshy Side of Lamb-skins, without taking off the Wool, it is used by People of Fashion instead of other Furs to line their Garments. *Scaliger* mentions another Particular concerning it, that no Beast of Prey will feed upon it except the Wolf, and that it is used as a Bait to catch that Animal.

Olearius tells us, he was shewn a Piece of this Skin, cover'd with a soft curl'd Wool like that of a young Lamb, which the People swore was taken from the Vegetable we have just described; but he could hardly believe them. Nor is *Olearius* the only one who has question'd
the

the Truth of this Story; for *Deusingius*, who very carefully examin'd the Matter, suspects the Whole to be fabulous; and Dr. *Breynius* is of the same Opinion. Nay farther, that learned Naturalist, Dr. *Kempfer*, though he diligently enquired for this vegetable Lamb in the Country where it is supposed to grow, found nothing like it; for neither the common People in *Tartary*, nor those who were skill'd in Botany, knew any thing of such a Plant; nor is there any thing in that Country call'd *Borometz* except real Sheep: And therefore he positively asserts, that whatever is said about this Vegetable is mere Fiction. The Doctor seems also to have discover'd the Origin of the Fiction; for he observes, that in some Provinces about the *Caspian* Sea, there is a Kind of Sheep different in several Respects from the common Sort, particularly in the Fineness of their Furs, which he describes, and shews how they are prepared for adorning the Cloaths of the *Tartars* and *Persians*. Now the Rich and Noble, (says the Doctor) who are ambitious of being cloath'd finer than the common Sort of People, are fond of the Furs of young Lambs, which are much more tender than those of the old Sheep, and the younger they are, the dearer; for their Wool will bear a fine and close Curl, which makes the Fur more beautiful and valuable. Hence it comes, that they often rip up the Dam and take out the *Fetus*, only for the sake of the Fur, which when duly pre-

pared is of so delicate a Grain, that after cutting off the Extremities it scarce resembles a Lamb-skin, and might easily deceive the Ignorant, who would be apt to take it for the downy Skin of a Gourd. With this they line their Turbans, and frequently use it by way of Ornament on the Borders of outer Garments. And hence the Doctor imagines the Story of the *Tartarian Lamb* had its Rise, the Fur of the Animal being transform'd into a Plant either through the Ignorance or Misapprehension of those who first gave an Account of it, or the false Conjecture of some Philosopher.—Be this as it will, we shall leave the Subject, and proceed to Matters that are not disputed*.

* Notwithstanding *Kemper* and others may treat the Account of the *Tartarian Lamb* as nothing but Fable, it is certain there is a Plant of this Kind which grows in *Tartary* and *China*. Sir *Hans Sloane* describes one (in *Phil. Transf.* N^o 247.) that was more than a Foot long, as thick as one's Wrist, and had Foot-Stalks towards the End about three or four Inches in Length, exactly like the Foot-Stalks of Fern both within and without. Most of the Outside was cover'd with a Down of a yellowish Sauff Colour, shi-

ning like Silk, and it seem'd to be shap'd by Nature to resemble a Lamb. The Down of this Vegetable, call'd *Poco sempie*, or *Golden Moss*, is recommended against spitting of Blood, in a Dose of six Grains; and three Doses are said to perform a Cure: But Sir *Hans*, though he believes it innocent, says he is sure it is not infallible. The *Chinese* frequently apply it to recent Wounds, as we do Cobwebs, in order to stop Bleeding; and they esteem'd it so much, that few Houses are without it.—The Truth

ANIMALS.

ANIMALS.

THE *Russian* Empire, and particularly *Siberia*, abounds with Variety of Animals, such as Foxes, Sables, Ermines, Lynxes, Beavers, &c. whose Furs are in great Request, and make a considerable Article in their Commerce. The *Beaver*, or *Castor*, is an amphibious Animal about three Foot long, and twelve or fifteen Inches broad in the Chest and Haunches. In the Northern Regions the Beavers are usually black or brown, but their Colour is lighter in more temperate Climates. Their Ears are small, their Teeth strong and sharp, and they have a long scaly Tail, which is flat like the Blade of an Oar, and serves them as a Rudder to steer by, especially when they swim under Water. Their fore Feet resemble those of Apes or Squirrels, which they use, like those Creatures, as Hands when they eat; but their hind Feet are adapted for swimming, having Membranes between the Toes, like Ducks and other Water-Fowl. The Skin of the Beaver is cover'd with two Sorts of Hair, the one long, the other a soft Down, very fine and compact. An Attempt was made at *Paris* in the last Century to

is, the Plant is a Kind of arboreſcent Fern, and may have ſome Reſemblance to a Lamb; but as to its being a Zoophyte, and feeding upon Graſs, and other ridiculous Stories related of it, they are confeſſedly fabulous.

manus

manufacture this Down, mix'd with Wool, into Cloths, Flannels, Stockings, &c. but the Project did not answer Expectation, it being found by Experience that the Stuffs lost their Dye when wet, and when dry again became harsh and stiff as Felts; so that the Beaver is now chiefly used in making Hats, or as a Fur for Warmth or Ornament.

THE Beaver has near its *Anus* two Bags or Purses, containing a liquid Matter call'd *Castoreum*, of considerable Use in Medicine. These Bags are about the Bigness of a Goose-Egg, and have been falsely taken for the Testicles of the Animal; but they are found indifferently in Males and Females. The Matter inclosed in these Bags is oily *, of a sharp bitter

* It is certain that Ducks, Geese, and all Sorts of Water-Fowl, have a Gland in their Rump, from which they express with their Bill an oily Matter, wherewith they anoint their Feathers, to prevent their being too much affected by the Water: And the Glands of that large Duck commonly call'd the *Muscovy Duck*, or rather *Musk Duck*, afford an Oil as fragrant as Civet. It is therefore probable, that as the Beaver is an Animal which frequents the Water, the

Castoreum is a Substance provided by Nature to grease and anoint his Fur with, to prevent the Water from soaking quite to his Skin. And this seems to be confirm'd by an Observation, that the Beaver frequently stops when he is hunted, and just going into the Water, putting his Mouth towards the *Anus*, in order to squeeze out the oily Liquor contain'd in his Bags, to anoint his Fur and preserve it from Injury. Hence possibly the Story had its Rise, that this

Taste,

Taste, and strong disagreeable Smell; but when taken from the Animal it dries and condenses, and becomes of the Consistence of Wax by hanging it in a Chimney. The *Russians* cure their *Castoreum* in the following Manner: They boil a few Wood-Ashes in a proper Quantity of Water, tie the Bags in Couples, and put them in the boiling Water for half a Quarter of an Hour. This done, they lay the Bark of the Birch-tree on the Fire, and smoke the Bags over it for about an Hour; and then letting them hang for a Week or longer, till they are perfectly dry and hard, they pack them up for Use or Exportation.—As to the Virtues of *Castoreum*, it discusses Flatulencies, corroborates the Head and nervous System, rallies the languishing Spirits, resists Poisons, causes Sneezing, and provokes the *Menses*. Hence it is of Use in a Lethargy, Apoplexy, Epilepsy, Vertigo, Palsy, Tremblings, Hysterics, and Cholic Pains; and as it consists of very minute and penetrating Parts, and is possess'd of a certain Acrimony, it seems proper to rouse and excite a languid Circulation. It is also said to cure a Ringing in the Ears, Difficulty of Hearing, and Pains in the Teeth, and to correct the Virulence of Opium.

Animal, sensible the Hunters and bites them off, and pursue him for the sake of leaves them to his Pursuers his Testicles, sometimes stops in order to save his Life.

SIR *Hans Sloane* kept a young female Beaver three Months in his Garden, till at last she was kill'd by a Dog. She was about half grown, not exceeding twenty-two Inches in Length from the Nose to the Root of the Tail, which was eight Inches long. She was very thick, and paunch-bellied; and the Shape of the Head, and indeed of the whole Animal, except the hind Feet and Tail, much resembled that of a great over-grown Water-Rat. They fed her with Bread and Water, and gave her some Willow-Boughs, of which she eat but little; but being turn'd loose in the Garden, she seem'd to like the Vines, having gnaw'd several of them as high as she could reach, quite down to the Roots: She likewise gnaw'd the Jessamine, and some Holly-Trees, but these least of all. Being put into a Fountain with some live Flounders, she never offer'd to strike at them, as an Otter would have done; so that Fish does not seem to be the natural Food of these Creatures, but Herbs, Fruits, and Branches of Trees. In swimming she made use of her hind Feet only, holding her fore Feet close up under her Throat, and never moving them till she came to the Side, and endeavour'd to get out of the Water. She swam under Water as swift as a Carp, and would now and then come up to breathe, thrusting her Nostrils just above the Surface. Her hind Legs being longer than her fore Legs, she walk'd but slowly, or rather waddled like a Duck; and if drove fast along, she could not run,

run, but went by Leaps or Jumps, flapping her Tail against the Ground.—As to the wonderful Polity observ'd amongst the Beavers, their gnawing down great Trees, their Manner of building their Habitations, and other Particulars of that Kind, we shall take notice of them when we come to *Canada*, which Country abounds with those Animals more than any other Part of the World.

AMONGST the Furs of *Siberia*, that of the *Ermine* is in great Esteem for its Whiteness and Lustre. This Creature is a Sort of Polecat or Weasel, and has sometimes been confounded with the Squirrel, and even with the Sable, though they are three different Animals. In order to heighten the charming White of the Ermine, the Furriers usually prick it here and there with little black Tufts, which are Bits of the Skin of a Lamb of a very shining Black, though some say they are Pieces of the Ermine's Tail.

THE *Sable* is a Sort of Weasel found in several Countries, but those of *Siberia* are the most esteem'd. The blackest bear the highest Price, and therefore the *Russians* have found out a Way of dying the brown Sable to the Colour of that which is naturally of a most beautiful Black: But Lemon-Juice will discharge this artificial Colour, and lay the Cheat open.

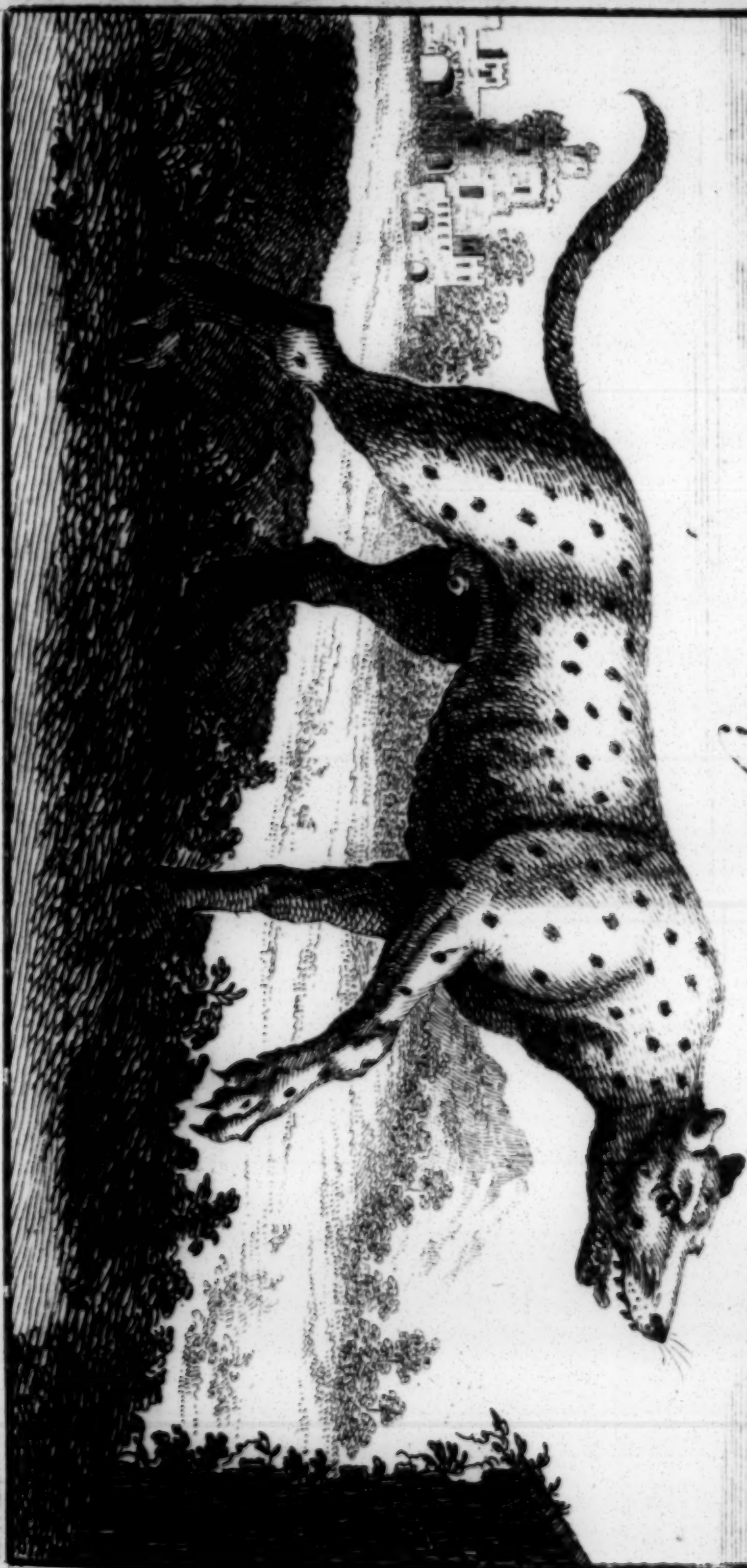
THE *Black Fox* is as well known in *Siberia* as the Sable, nor is it common any where but in such cold Countries; so that to suppose all
Animals

Animals have white Hair in the Northern Climates, is a vulgar Error. Some of them indeed are found perfectly white, which would naturally be of another Colour in warmer Countries; and some that are brown in Summer, as Hares for Instance, turn grey or white in Winter, and the next Summer resume their former Colour: But there are many which are not subject to such Changes.

WE have another Sort of Fur from *Siberia*, which is the Skin of a *Squirrel* found there and in other Northern Countries. These Creatures are brown in Summer, but grey in Winter, at which Time they are kill'd, and afford two different Sorts of Furs, the Back being grey, and the Belly as white as Ermine. It is border'd on each Side with a black Streak, which is carefully preserved. When the Fur is varied alternately with the Skin of the Back and Belly, it is much the richer.

To these Animals we ought to add a Sort of Mountain Cat, bigger than a Fox, which for its sparkling Eye is look'd upon by several Naturalists to be the *Lynx* of the Ancients. This Creature is found in other Parts of *Europe* as well as in *Moscovy*, and its spotted Skin is one of the most beautiful in the World, though it does not seem to be so much esteem'd as it deserves.

OF all the Fish that are found in the Seas and Rivers of the *Russian* Empire, which afford great Plenty and Variety, the *Sturgeon* seems to be





be the most worthy our Notice, on account of the vast Traffick it occasions*. The Sturgeon is a large Sea-Fish, which at its Season runs up the Rivers, having a sharp pointed Snout, flat Belly, and bluish Back. They are of various Sizes, sometimes fourteen or even twenty Feet in Length; but those of a middle Size are reckon'd the best. When fresh, they are delicious Food; and to keep them they are salted or pickled in large Pieces, and put up in Cags, from twenty-five to fifty Pounds.—The greatest Sturgeon-Fishery in the World is at the Mouth of the *Volga*, which falls into the *Caspian Sea*, where a Multitude of Hands are employ'd. The Fish are not taken with Nets, but in a Kind of Inclosure form'd by huge Stakes disposed in Triangles, representing the Letter Z several times repeated; which being open on the Side towards the Sea, and close on the other, the Fish, ascending in the Season up the River, embarrass themselves in these narrow angular Retreats, and not being able to turn themselves back again by reason of their Bulk, are easily struck and kill'd with a Sort of Harpoon or Javelin. It is only the lesser and younger Sturgeons that are pickled for eating; but the great Object of this Fishery is the Roe or

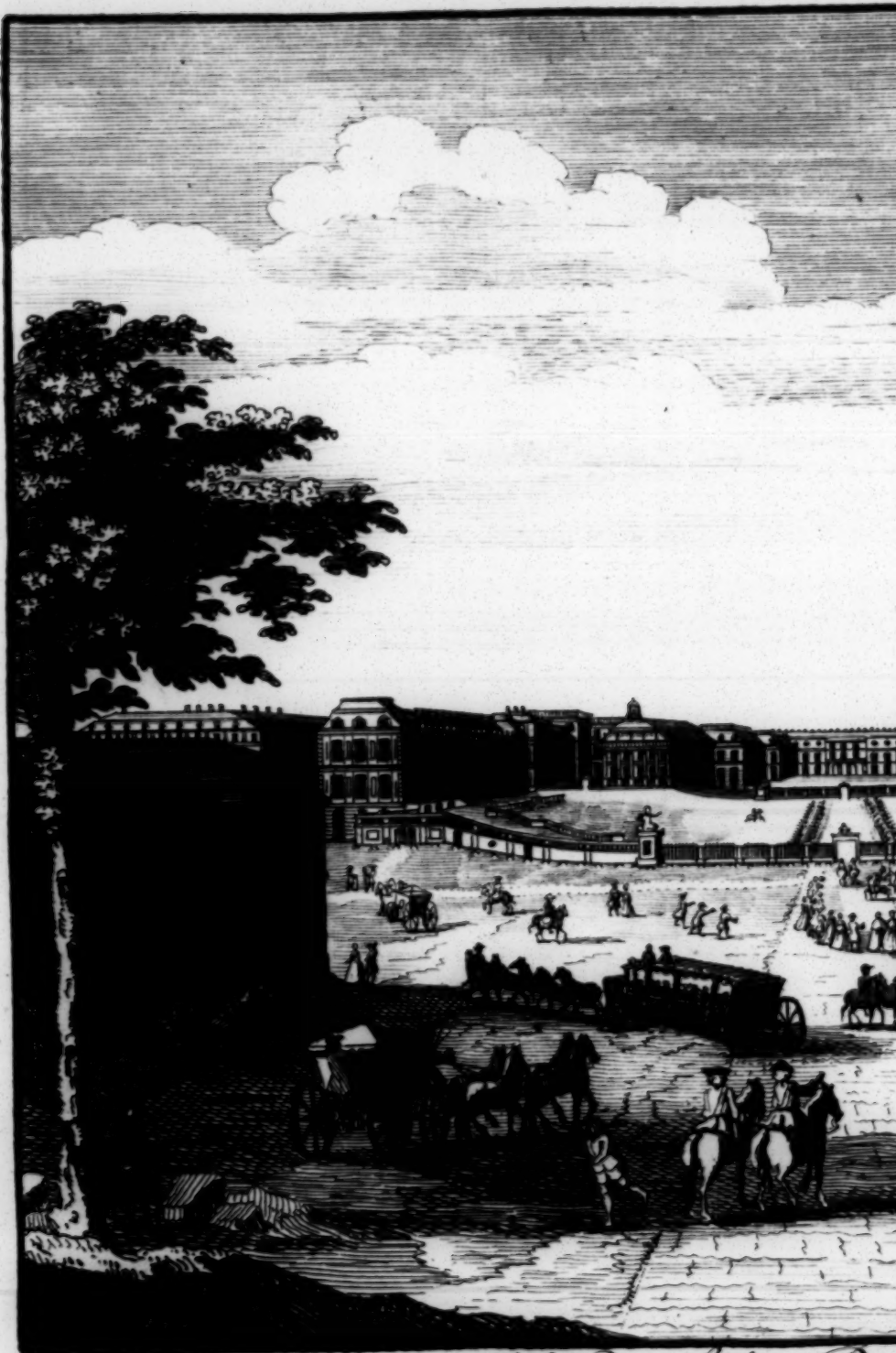
* Sturgeons, with us, are left on Shore, but when reckon'd among the Number of Royal Fishes, as belonging to the King when taken out at Sea are the Property of the Person who takes them.

Spawn of the Fish, a Commodity as much used in *Moscow* as Butter in *Holland*. The Roes are cured by salting and drying them in the Sun or by the Fire, and thus prepared it is call'd *Cavear* or *Cavia*, and is sent up the *Volga* to *Moscow*, from whence it is distributed into all Parts of the Empire, where it is of great Service to the People on account of the several Lents they observe with the utmost Strictness. The *English* import considerable Quantities of *Cavear* from *Russia*, but not so much for home Consumption (though it has lately been introduced to our Tables) as to supply the *French* and *Italians*. If good, it is of a reddish brown Colour, and very dry. Some eat it with Oil and Lemon, others with Vinegar; sometimes it is eaten alone with Bread, and sometimes only as a Sauce or Pickle, like Anchovies.

BUILDINGS.

IN a Country so rude and unpolish'd as *Moscow* has been till of late, one cannot expect to find many Instances of beautiful or elegant Architecture, and yet there are some Structures to be met with which are not undeservedly admired. The stately Church in the City of *Moscow*, call'd the *Jerusalem*, is said to be such an extraordinary Pile of Building, that the Czar *John Basilides* the First, in whose Reign it was erected, ordered the Eyes of the Architect to be put out, that he might never contrive or behold



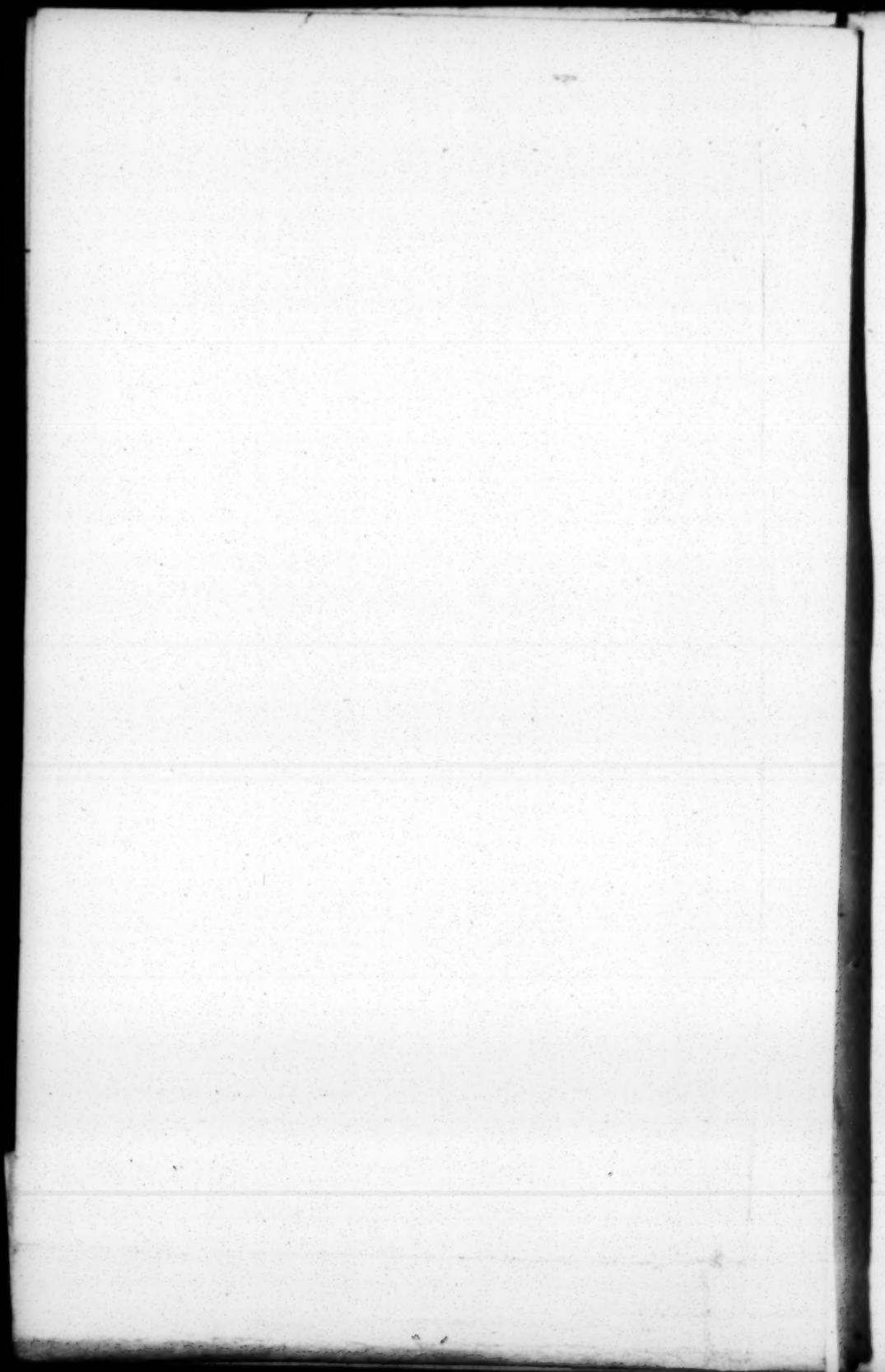


A View of the Palace



Palace of Versailles.

B. Cole sculp.



behold its equal. There are several other magnificent Churches in the same City, particularly that of St. *Michael*, which stands within the Walls of the Castle, and is adorn'd with the Tombs of the Czars or Great Dukes of *Moscow*. On the Right Side of the Altar is the Czar's Throne, and on the Left that of the Patriarch; and in the Body of the Church hangs a Chandelier of immense Weight and Value. The very Jewels and other Ornaments that enrich a Picture of the Virgin *Mary* are valued at half a Ton Weight of Gold; besides a vast Number of Statues, Chalices, and other Utensils of Gold and Silver finely wrought and set with precious Stones, a great many rich sacerdotal Vestments, and an immense Quantity of Donatives offer'd to the Relicks of three eminent *Russian* Saints which are here interr'd: So that the Treasure of this Church is said to be equal, at least, to that of any Cathedral in *Europe*.—The Tombs of the Princes who never reign'd are in a separate Chapel; and the Princesses of the Blood are interr'd in a neighbouring Monastery of Nuns, which is a noble Structure.

NEXT to the Churches of *Moscow* we may reckon those of *Petersburg*, especially the Cathedral, which is a magnificent Edifice, built by the Direction of an *Italian* Architect.—That of *Nisi-Novogrod* is a stately Pile, all built of Stone, having fine Cupolas, after the Model of that of *Santa Sophia* at *Constantinople*. These

Cupolas are painted with a shining green Varnish, and the Tops of them are adorn'd with neat small Crosses.—Add to these the Cathedral Church of *Wologda*, an ancient and majestic Structure, which has also five Cupolas cover'd with Tin, and Crosses on the Tops of them finely gilt, which, when the Sun shines upon them, make a glittering Appearance. Besides this there are twenty other Stone-Churches in that City, and above forty more built of Timber.

As to the Imperial Palaces, there are two noble ones at *Moscow*, the one of Timber, the other of Stone, and built after the *Italian* Manner, as is also the fine Palace at *Petersburg*. Her Czarish Majesty's Pleasure-House call'd *Petershoff*, being built by the late Czar *Peter* the Great, stands on the Coast of the Gulf of *Finland* between *Cronslot* and *Petersburg*, and is one of the best Buildings in the Northern Parts of *Europe*. The House stands on a rising Ground, is furnish'd after the *Dutch* Manner, and adorn'd with beautiful Paintings. Large Vessels can come up to it by means of a long and deep Canal, cut from thence to the Sea, which was dug in two Months Time, and furnishes a large Reservoir about three Miles distant from *Petershoff*, where there is a curious Water-Engine erected by a *Dutchman*. Not far from *Petershoff* are two other pretty Seats, which are almost encompass'd with Basons, Fish-Ponds, Fountains, Cascades, &c. all supplied with

with Water from the great Reservoir just mentioned, and forming a most elegant and delightful Prospect.

HAVING thus gone through the *Russian* Empire, it remains to take a View of the *Turkish* Dominions in *Europe*, which will finish the first Part of our Undertaking.

C H A P. XII.

Of TURKEY in EUROPE.

CAVERNS, NEW ISLANDS, &c.

THIS Part of the *Turkish* Empire was formerly the most considerable of the *European* Continent, having been inhabited by Nations who make the greatest Figure in ancient History. The Valour, Wisdom, and Learning of the old *Grecians* in particular is well known to all who are in the least acquainted with Antiquity, their Country being once the most celebrated in the Universe, surpassing all others in Arms, Arts, and Sciences. It was for many Ages divided into several small Kingdoms and Republicks, which were at length reduced to the Subjection of the *Macedonians*, and afterwards became a Province of

the *Roman* Empire; and so it continued (tho' harrassed and dismember'd by the *Goths* and *Huns*) till it was over-run by the *Turks*, who are its present Masters. In this and other Parts of the *Turkish* Dominions we shall find many curious Remains of Antiquity; but, according to our Method, some Articles of Natural History come first under Consideration.

In the Course of this Work we have already described several remarkable Caves or Grotto's, but perhaps no Curiosity of this Kind deserves our Attention more than the Grotto of *Antiparos*, an Island in the *Archipelago*, which *M. Tournefort*, who view'd it in the Year 1700, represents as one of the greatest Wonders in Nature. The Descent into this Grotto is very difficult and dangerous, being for the most part down Rocks and frightful Precipices, by means of Ropes and Ladders, and the Assistance of Guides who attend with Torches. From the first Entrance into the Cavern to the Bottom of the Grotto is reckon'd a hundred and fifty Fathoms, and the Grotto itself is about forty Fathoms high and fifty broad. The Roof, which is in Form of an Arch, is embellish'd with Variety of natural Fret-work, from whence hang Resemblances of Bunches of Grapes, Festoons, and Lances of a surprizing Length. All round the Grotto are form'd several little Closets or Cabinets, among which there is one particularly distinguishable, the Productions that form it (says *M. Tournefort*) so exactly resembling

bling the Roots, Stems, and Heads of Collyflowers, that one would think Nature intended thereby to shew us how she operates in the Vegetation of Stones*. These Figures are all of

* That Stones vegetate, or grow in the Manner of Plants, seems to have been an ancient and forgotten Hypothesis, but lately revived by M. *Tournefort*, who, at his Return from the *Levant*, proposed his Theory to the Royal Academy of Sciences at *Paris*, which he supported by a Variety of Arguments and Observations. He took notice in surveying the Labyrinth of *Crete*, that several People had cut their Names in the Rock, and that the Letters, instead of being hollow, as they must have been at first, (being cut with the Point of a Knife) were become prominent, and stood out from the Surface of the Stone, like so many Basso-Relievo's. Hence he inferr'd, that the nutritious Juice of the Stone, being extravasated, had gradually fill'd up the Cavities of the Letters, and form'd a Sort of Callosity, like those at the Extremities of the Fibres of broken Bones, or on the Bark of Trees that have

been cut with a Knife or Graver: And being confirm'd in his Opinion by similar Callosities form'd on several other Stones which had re-united after they had been broken, he made no Doubt of ascribing this Effect to Vegetation. But this is not all: The same Gentleman thinks it probable, that Stones not only grow, but are generated like Plants, having their respective Seeds, which he supposes are a Kind of Dust that falls from them while they are alive or continue to vegetate; at least there are abundance of Stones whose Generation is otherwise inconceivable. This Dust may be compared to the Seeds of several Plants, as those of Ferns, Mosses, Mushrooms, &c. which were always supposed destitute of Seed, till it was discover'd in some of them by the Assistance of the Microscope, which leaves no Room to doubt but the rest have it likewise.

white

white Marble, transparent in small Pieces, and, when struck, found like Copper.—Here are likewise three or four Columns of the same Stone, planted like Trunks of Trees on the Top of a little Rock, one of which is six Feet eight Inches high, and one Foot in Diameter, and on the same Rock are several other budding Pillars, resembling the Stumps of Horns. These Stems of Marble (adds our Author) must certainly vegetate, for not a Drop of Water falls into the Place; and if it did, we cannot conceive how a few Drops, falling from such a Height as the Top of this Grotto, should form cylindrical Pieces, and always of the same Regularity.

At the farther End of the Grotto appears a Pyramid still more surprizing than what we have mention'd, which has been call'd the *Altar* ever since the Year 1673, when the Marquis de *Nointel*, the *French* Ambassador to the Grand Signior, caused Mass to be celebrated in this Cavern. It stands by itself, is about eight Yards high, and consists of many large Bunches resembling Collyflowers, and all of a dazzling Whiteness, like the rest of the Grotto. This Pyramid M. *Tournefort* thinks is the finest Marble-Plant in the World; for it is impossible (he again insists) that it should be form'd by the Droppings of Water, to which the Congelations in Grotto's are usually attributed*; and

* What M. *Tournefort* poses it to vegetate, is a here calls Marble, and sup- Kind of Spar. according to there-

therefore it is more probable that these Productions, as well as those which hang down from the Roof like Icicles, are owing to a Principle of Vegetation.

In order to go round this Pyramid, one must pass under a great Mass of Congelations, the back Part of which is hollow like the Roof of an Oven. The Entrance into it is low; but the Sides, which are whiter than Alabaster, are so figured as to appear like Tapestry of great Beauty. From the Top of the Roof, just over the Pyramid, hang Festoons of an extraordinary Length, which form, as it were, the Attic of the Altar. At the Foot of the Altar are two Half-Columns, the Tops whereof

Mr. Hill, who describes it under the Name of *hard white Stalactagium*, of which very various and beautiful Figures are form'd in deep Caverns by the accidental Course and dropping of Water; and such Combinations and Protuberances (he says) are what coat over the famous Grotto's of the Islands in the *Archipelago*, and the Caverns of the *Hartz* Forest in *Germany*, which People of fertile Imaginations have supposed to represent Groves, Rivers, Trees, Plants, Buildings, and the Forms of various Animals. Mr. Hill has

particularly mention'd the Grotto of *Antipares*, but has not taken notice of what M. *Tournefort* relates concerning it, that not a single Drop of Water falls from its Roof. If this be true, it is somewhat difficult to account for the Formation of those stony Icicles that hang down from the Top, or the Protuberances and Incrustations growing at the Bottom and on the Sides of the Grotto; so that one would wish our ingenious Countryman had given us his Sentiments as to the Manner of their Production.

M. de Nointel caused to be broken off, that they might serve as a Table in the Celebration of the Mass; the Memory of which Transaction is perpetuated by an Inscription carv'd by his Order on the Basis of the Pyramid.

IN *Candia*, the ancient *Crete*, a large Island in the *Mediterranean* belonging to the *Turks*, there is a subterranean Maze or Labyrinth*, which pervades the whole Inside of a Hill at the Foot of Mount *Ida*, three Miles from the Ruins of *Gortyna*. The Entrance of this Labyrinth is seven or eight Paces broad, but so low that a Man cannot pass it without stooping. The Bottom of it is very rough and uneven, but the Roof is flat, being form'd of Beds of Stone lying horizontally one upon another: Proceeding forwards through a sloping Cavern, we soon meet with innumerable Turnings and Windings, so irregular and intricate, that if a Person happen to strike into any of them out of the main Path or Alley, he is in great Danger of being bewilder'd and lost. To prevent this, Strangers seldom deviate to the Right or Left, but keep along the principal Alley; and

* The Reader must not imagine that this is the famous Labyrinth built by *Dædalus* for *Minos* King of *Crete*, which appears from antique Medals to have been at *Gnosus*, at that Time the Capital of the Island, but now an inconsiderable Village. *Diodorus Siculus* and *Pliny* tell us, there was not in their Days the least Footstep of that Labyrinth remaining.

to find the same Way back again the more easily, thy scatter Straw on the Ground, stick up Bits of Paper at every Turning, or take some other Precaution of that Nature. The chief Passage is about seven Feet high, and the greatest Part of it is wide enough for three or four Persons to walk a-breast; but in some Places a Man must stoop a little, and in one Part he is obliged to creep upon his Hands and Knees to get along. It is near a Mile from the Entrance to the End of the Labyrinth, where the grand Walk divides itself into two or three Branches, and terminates in circular Rooms cut out of the Rock, in which Strangers rest themselves with Pleasure.—*Belonius* and some other Authors have imagined that this wonderful Labyrinth was originally a Quarry, out of which Stones were dug for the Building of *Gnosus* and *Gortyna*; but *M. Tournefort*, who thoroughly consider'd the Matter, gives several strong Reasons against such an Hypothesis. He thinks it much more probable, that it was at first a natural Cavity, which some Persons had the Curiosity to enlarge, by widening the Passages, and taking down some Strata of Stone to heighten the Roof; for the *Cretans* (he observes) were a polite People, devoted to Arts as well as Arms, and took Delight in perfecting the rude Sketches of Nature. There are several other natural Openings in the neighbouring Mountains, and abundance of Caverns in the Rocks throughout

out the Island, which seem to confirm this Conjecture.

As we are not far from *Santorin* or *Santerini*, an Island in the *Archipelago*, we think it is not improper to give some Account of a new Island which rose up near it from the Bottom of the Sea towards the Beginning of the present Century. This however is not the first Prodigy of that Kind which has appear'd near *Santerini*, for the *Great* and *Little Burnt Island* (as they are call'd) were both rais'd out of the Sea in the same Manner, the first about two hundred Years before the Birth of our Saviour, the latter in the Year 1573; and *Aspronisi*, or the *White Island*, which is a little without the Bay of *Santerini*, emerg'd in the Time of *Vespasian*. All this is occasion'd by violent Earthquakes and subterraneous Fires*, whose dreadful Effects are sufficiently known in several Parts of the World; of which they had an Instance near *Santerini* in the Year 1650, when the Shocks of an Earthquake were accompanied with a roaring Noise under Ground, sulphureous Exhalations,

* From the same Causes we imagine have proceeded those Showers of Ashes which have been observ'd to fall in the *Archipelago* and the *Mediterranean*; for several extraordinary Phenomena of this Kind, which have been look'd upon as preternatural

and ominous Accidents, have, upon strict Enquiry, been found owing to natural Causes. Thus a bloody Rain was thought to have fallen in *France*, which so frighten'd the Country-People that they left their Work in the Fields; but *M. Peiresc* examining

an intolerable Stench, and a black Smoke, which rose out of the Sea mix'd with Flames to a considerable Height. The Sea was then toss'd backwards and forwards in such a Manner, that it overflow'd and destroy'd thirty thousand Perches of Land in *Santerini*, and the Air was

narrowly into the Matter, found it was only red Drops coming from a Sort of Butterfly which then flew about in great Numbers. During a Scarcity in *Silesia*, a Rumour was spread of its raining Millet-Seed; but upon Examination it prov'd to be the Seed of the Ivy-leav'd Speedwell, or small Henbit, which grew there in great Abundance. So likewise about *Warminster* in *Wilts* it was reported to have rain'd Wheat, but Mr. *Cole* found it to be only Ivy-Berries blown thither in a considerable Quantity by a Tempest; and this agrees with Dr. *Merret*'s Observation, that the pretended Showers of Wheat are nothing but Ivy-Berries swallow'd and voided again by Starlings and other Birds. Some assert the raining of young Frogs, small Fishes, &c. which Dr. *Derham* supposes may be transported by tempestuous Winds,

(though they may have some other Conveyance) especially considering to what Distance, and in what Quantities, the Sea-Water was carried in the great Storm in 1703, of which he had the following Accounts from a Friend in *Sussex*: That a Physician travelling soon after the Storm, about twenty Miles from the Sea, pluck'd some Twigs from the Hedges, and chewing them found them to be salt: That the Grass of the Downs about *Lewes* was so salt, that the Sheep would not feed till compell'd by Hunger: And that a Miller with his Man attempting to secure his Mill, which was three Miles distant from the Sea, were so wash'd by Flashes of Sea Water, like the Breakings of Waves against the Rocks, that they were almost strangled with it, and forced to give over their Attempt.

so infected with Exhalations from the Fire, that twenty-five Persons and a great many Beasts were stifled. At length, when the Force of the Fire and Earthquake had raised up a Mass of Earth and Stones within eight or ten Fathoms of the Surface of the Sea, a Vent being open'd on a sudden, the Water rush'd in like a Torrent, and extinguish'd the Fire, and thereby prevented the Appearance of another Island. History affords us several other Instances of the surprizing Effects of these Concussions of the Earth near *Santerini*, and particularly M. *Thevenot* relates, that about the Year 1638 a prodigious Quantity of Pumice-Stones was cast up from the Bottom of the Sea, with such Noise and Roaring as resembled the Discharge of Artillery; insomuch that the Inhabitants of *Scio*, which is above a hundred Miles distant, imagined the *Venetian* and *Turkish* Fleets were engaged. The Air was likewise so fill'd with noxious Exhalations that many People died in *Santerini*, and the Silver in Men's Pockets or Chests was tarnish'd, even at the Distance of *Scio* and *Smyrna*.—But to come to the Account of the last new Island that appear'd in the Bay of *Santerini*, as we have it from F. *Goree*, who was an Eye-Witness of its Formation.

ON the 23d of *May* 1707, after an Earthquake that happen'd the Night before, a new Island was discover'd early in the Morning by some Seamen, who not being able to distinguish what it was, and taking it for some Wreck

Wreck brought thither in the Night-time, row'd immediately towards it; but finding a Heap of Rocks and Earth, instead of a floating Wreck, they hasten'd back again, and spread the Report over *Santerini*. How great soever the Apprehensions of the Inhabitants were at the first Sight of this Phænomenon, their Surprize abated in a few Days, and seeing no Appearance of Fire or Smoke, some of them ventur'd to go ashore upon the new Island. Their Curiosity led them from one Rock to another, where they found a Sort of white Stone that cut like Bread, and very much resembled it in Form, Colour, and Consistence. They also found great Numbers of Oysters sticking to the Rocks, but whilst they were employ'd in gathering them, they perceived the Island move and shake under their Feet, upon which they retired to their Boats with Precipitation. With these Motions and Tremblings the Island every Day increased, not only in Height, but also in Length and Breadth; though now and then it happen'd, that whilst it was rais'd and extended on one Side, it sunk and diminish'd on the other. F. *Goree* observed a Rock rise out of the Sea, about forty or fifty Paces from the Island, which continued four Days together, when it sunk again and appeared no more; but several others have appear'd and disappear'd alternately, which at last remain'd fix'd and unmoved. During this Time the Colour of the surrounding Sea was changed, being at first of a light Green,

then reddish, and afterwards of a pale Yellow, accompanied with a noisome Stench, which spread itself over great Part of *Santerini*.

THE Smoke appear'd first on the 16th of *July*, not indeed from the Island itself, but from a Ridge of black Stones which suddenly rose up about sixty Paces from it, where the Depth of the Sea was before unfathomable. Thus for some Time there were two separate Islands, whereof one was call'd the *White*, and the other the *Black Island*, by reason of their different Colour; but they were not long before they united, and that in such a Manner, that these black Rocks became the Centre of the whole Land. The Smoke issuing from them was very thick, and of a whitish Colour, like that of a Lime-Kiln; which being driven by the Wind towards *Santerini*, it penetrated the Houses of the Inhabitants, but without doing much Harm, the Smell not being then very offensive.

IN the Night between the 19th and 20th of *July*, Flames were observ'd to issue with the Smoke, to the great Terror of the Inhabitants of *Santerini*, especially those of the Castle of *Scaro*, who were not above half a League distant from the burning Island. This Island now increased very fast, large Rocks daily springing up, which added sometimes to its Length, sometimes to its Breadth, insomuch that the Additions from time to time might easily be perceiv'd. The Smoke also increas'd very
much,

much, and there being no Wind stirring, it ascended so high as to be seen at *Candia*, *Naxos*, and other distant Islands. During the Night it appear'd like a Column of Fire fifteen or twenty Feet high; and the Sea at that Time was cover'd with a Scurf or Froth, in some Places reddish, and in others yellowish, from whence proceeded such a Stench over the whole Island of *Santerini*, that they were obliged to burn Perfumes in their Houses, and to make Fires in the Streets to prevent Infection. This indeed did not last above a Day or two, the Froth being dispers'd by a strong Gale of Wind; but another Evil quickly follow'd, for the Wind drove the Smoke upon most of the Vineyards of *Santerini*, whereby the Grapes in one Night were parch'd up and destroy'd. It was also observ'd that the Smoke sullied Plate and Copper, and caused violent Head-achs, attended with Reachings.

THE 31st of *July* the Sea was perceiv'd to smoke and bubble near the Island in two different Places, where the Water form'd a perfect Circle, and look'd like Oil when set upon the Fire. This lasted for above a Month, during which Time a great many Fish were found dead on the Shore. The following Night was heard a dull hollow Noise, like the distant Report of several Cannons; which was immediately follow'd by Flames of Fire shooting up from the Furnace to a great Height in the Air, where they suddenly disappear'd. The next Day the same hollow Sound was heard several times, and

succeeded by a blackish Smoke, which, notwithstanding a pretty fresh Gale, rose up in the Form of a Column to a prodigious Height; and this in the Night would probably have appear'd as if it were all on Fire.

On the 7th of *August* the Noise was different, resembling that of large Stones thrown all together into a deep Well, and the Extremities of the Island seem'd to be in great Commotion. This Noise, after it had lasted some Days, was succeeded by another much louder, which so nearly resembled Thunder, as hardly to be distinguish'd from three or four real Claps, that happen'd about the same Time. On the 21st the Fire and Smoke were considerably diminish'd, but the next Morning they broke out with greater Fury than before. The Smoke was red and very thick, and the Heat was so intense, that all round the Island the Sea smoked and bubbled up in a surprizing Manner. At Night F. Goree, viewing with a Telescope the large Furnace upon the highest Part of the Island, discover'd sixty smaller Openings or Funnels, all which emitted a very bright Flame; and he imagined there might be as many more on the other Side of the great Volcano.

THE 23d of *August*, in the Morning, our Author observ'd the Island was much higher than the Day before, and that its Breadth was increased by a Chain of Rocks sprung up in the Night-time, almost fifty Feet above Water. The Sea was also cover'd again with the reddish
Froth

Froth above mention'd, which always appear'd when the Island receiv'd any considerable Additions, and occasion'd an intolerable Stench till it was dispers'd by the Wind and the Motion of the Waves.

THE 5th of *September* the Fire open'd itself another Vent at the Extremity of the *Black Island*, from whence it issued for several Days, during which Time there came but little out of the large Furnace : And from this new Passage it was surprizing to see the Fire dart up three several times to a vast Height, resembling so many Sky-Rockets of a glowing lively Red. The following Night the subterraneous Thunder made a terrible Noise, and immediately afterwards a thousand Sheaves of Fire, as it were, flew up into the Air, where breaking and dispersing they fell like a Shower of Stars upon the Island, which appear'd all in a Blaze, presenting to the astonish'd Spectator at once a most dreadful and beautiful Illumination. To these natural Fireworks succeeded a Kind of Meteor, which hung for some time over the Castle of *Scaro* like a fiery Sword, and increased the Consternation of the Inhabitants.

ON the 9th of *September* the *White* and *Black* Islands united, after which the Western End of the Island daily increased. There were now only four Openings that emitted Flames, which came out with great Impetuosity, sometimes attended with a Noise like a large Organ-Pipe, and sometimes like the Howling of wild Beasts.

On

On the 12th the subterraneous Noise was very much augmented, having never been so dreadful nor so frequent as that Day and the following. The Bursts of it, like a general Discharge of the Artillery of an Army, were repeated ten or twelve times in four and twenty Hours, and immediately after each Clap the large Furnace threw up huge red-hot Stones, which fell into the Sea at a great Distance. These Claps were always follow'd by a thick Smoke, which spread Clouds of Ashes over the Sea and the neighbouring Islands.

THE 18th of *September* an Earthquake was felt at *Santerini*, which did no great Damage, but considerably enlarged the burning Island, and gave Vent to the Fire and Smoke in several new Places. The Claps were also more terrible than ever, and so violent that one would have thought every House in *Scaro* must have been shaken to the Ground: And in the midst of a thick Smoke, which appeared like a Mountain, one might see and hear large Pieces of Rock thrown up with as much Noise and Force as Bullets from the Mouth of a Cannon, and afterwards fall down upon the Island, or into the Sea. One of the small neighbouring Islands was several times cover'd with these fiery Stones, which being thinly crufted over with Sulphur gave a very bright Light, and continued burning till that was consumed.

ON the 21st of the same Month after a dreadful Clap of subterraneous Thunder, very
great

great Lightnings ensued; and at the same Instant the new Island was so violently shaken, that Part of the large Furnace came tumbling down, and huge burning Rocks were thrown to the Distance of two Miles or upwards. This seem'd to be the last Effort of the Volcano, and to have exhausted the combustible Matter, especially as all was quiet for several Days after: But on the 25th the Fire broke out again with still greater Fury; and amongst the Claps there was one so terrible, that the Churches of *Santerini* were presently fill'd with Crowds of People expecting every Moment would be their last, and the Castle of *Scaro* suffer'd such a Shock, that the Doors and Windows of the Houses flew open. Thus the Volcano continued to rage during the remaining Part of the Year, and the Month of *January* 1708; the large Furnace, without one Day's Intermission, throwing out Stones and Flames, at least once or twice, but oftner five or six times a Day.

THE 10th of *February*, in the Morning, a pretty strong Earthquake was felt at *Santerini*, which the Inhabitants look'd upon as a Prelude to greater Commotions in the burning Island. Nor were they deceiv'd in their Expectation; for soon after the Fire and Smoke issued in prodigious Quantities, the Claps like Thunder were redoubled, and nothing appear'd but Horror and Confusion. Rocks of amazing Bulk were rais'd up to a great Height above the Water,
and

and the Sea raged and boil'd to such a Degree, that it occasion'd a general Consternation. The subterraneous Bellowings were heard without Intermission, and sometimes in less than a Quarter of an Hour there were six or seven Eruptions from the large Furnace. The Noise of the repeated Claps, the Quantity of huge Stones that flew about on every Side, the Houses tottering to their very Foundations, and the Fire which now appear'd in open Day, surpass'd all that had hitherto happen'd, and form'd a Scene astonishing beyond Description.

THE 15th of *April* was remarkable for the Number and Violence of the Bellowings and Eruptions, by one of which near a hundred large Stones were thrown up all together into the Air, and fell again into the Sea at about two Miles Distance. From this Time to the 23d of *May* (the Anniversary of the Birth of the new Island) Things continued much in the same State, but afterwards the Fire and Smoke subsided by Degrees, and the subterraneous Thunders grew less terrible.

ON the 15th of *July* our Author, accompanied by the *Latin* Bishop of *Santerini* and some other Ecclesiasticks, hired a Boat to take a near View of the Island, and to land upon it if they found it practicable. They made directly towards it on that Side where the Sea did not bubble, but where it smok'd very much. Being got into this Vapour, they perceiv'd a close suffocating Heat, and found the Water
very

very hot; whereupon they directed their Course towards that Part of the Island which was farthest distant from the large Furnace. The Fires, which still continued to burn, and the boiling of the Sea, obliged them to take a great Compass, and yet they felt the Air about them very hot and sultry. Having coasted round the Island, and survey'd it carefully from an adjacent one, they judg'd it to be two hundred Feet above the Sea, about a Mile broad, and five Miles in Circumference: But not being thoroughly satisfied with this View of it, they resolv'd to attempt once more to land, and accordingly row'd towards that Part of the Island where no Fire or Smoke had been perceiv'd: But when they had got within a hundred Yards of the Place, the great Furnace discharged itself with its usual Fury, and the Wind blew upon them a thick Smoke and a Shower of Ashes, which obliged them to quit their Design. Having retired a little they let down a Plummert, and had ninety-five Fathom Water without finding the Bottom, the Line not being long enough. Being return'd to *Santerini*, they observ'd that the Heat of the Water had melted most of the Pitch from their Boat, which was therefore grown very leaky.

FROM this Time till the 15th of *August*, when *F. Goree* left *Santerini*, the Fire, Smoke, and Noise continued pretty moderate; and by the Accounts he receiv'd from thence for several Years afterwards, it appears that the Island still increased,

increased, but that the Fire and subterraneous Noise were very much abated: And our Author supposes, as there is no Likelihood that the Fire will make itself a Passage at the Bottom of the Sea, so as to let in the Water to extinguish it, that the Volcano will not have an End till the Mine of Sulphur that feeds it be entirely consumed*.

To this surprising Phænomenon, on which we have dwelt so long, we cannot forbear adding a brief Account of another in the *Archipelago*, which has been taken notice of in all Ages as one of the greatest Wonders in Nature, viz. the irregular Flux and Reflux of the *Euripus*, a famous Streight, dividing the Island

* As strange as it may seem, that Islands should be raised from the Bottom of the Sea, the Instance we have here given is unquestionably true; and some are of Opinion that *Santerini* itself originally emerged above the Waves in the same Manner. Other Islands have undoubtedly been rent and separated from the Continent by violent Storms, Inundations, and Earthquakes; to some of which Causes perhaps our own Island owes its Formation: And it is observed, that the *East-Indies*, which abound in Islands more

than any other Part of the World, are likewise most annoy'd with Tempests, Lightning, Volcano's, Earthquakes, &c. — *Varenius* supposes, that *St. Helena*, *Ascension*, and other steep rocky Islands, were form'd by the Sea's overflowing their neighbouring Campaigns; and those of *Zealand*, *Japan*, &c. he thinks proceeded from the heaping up of vast Quantities of Sand and other terrestrial Matters. *Sumatra*, *Ceylon*, and most of the *East-Indian* Islands, he thinks were rent off from the main Land, and con-

of

of *Negropont* (anciently *Eubæa*) from the Continent of *Greece*. This Channel is so narrow, that the chief Town of the Island, call'd *Egripos* by the modern *Greeks*, has a Communication

cludes that the Islands of the *Archipelago* were form'd in the same Way; to which he imagines that *Deucalion's* Flood might possibly contribute — But not to dwell upon Conjectures, we shall add another yet more recent Instance than that already given of an Island rais'd out of the Sea by subterraneous Fires, as we find it related in the *Philosophical Transactions*. On the 10th of *December* 1720, *John Robinson*, Master of a small Vessel from *Piscataqua* in *New England*, arrived at *Tercera*, one of the *Azores*; and sailing from thence *December* the 18th, the next Day about Two o'Clock he made an Island all Fire and Smoke. The following Night the Ashes fell on his Deck like Hail or Snow, upon which he bore from the Island, the Volcano roaring as loud as great Guns or Thunder. At Break of Day he stood towards it again, and sail'd round it so near that the Fire and Matter it threw out had

like to have done him Damage; and being also in Danger of driving ashore, the Consternation was such that all on board betook themselves to Prayers: But a small Gale springing up carried them clear, and they stood away for *Tercera*. The Governor there inform'd them, that the Fire broke out in the Night of the 20th of *November* preceding, being accompanied with a prodigious Noise and an Earthquake, which shatter'd several Houses in the Town of *Angra*, the chief of *Tercera*, as well as in the neighbouring Villages. Vast Quantities of Pumice-Stones and half-broil'd Fish were found floating on the Sea for many Leagues round the Island, and abundance of Sea-Fowl hovering about it.—Having been thus particular on these extraordinary Commotions of Nature, we shall have Occasion to say the less on the Subject when we come to treat of other Parts of the World.

with the main Land by a Stone Bridge of four or five Arches, and a Draw-Bridge just wide enough for a Galley to pass through; in this Part therefore the Inconstancy of its Tides is the most easily discern'd. These Tides are sometimes regular and sometimes irregular, which F. *Babin*, who observ'd them very particularly, attributes partly to the Situation of certain Gulphs on each Side of the Streight, though he allows the Moon to be the principal Cause. From the three last Days of the old Moon to the eighth of the new the Tides are regular; the ninth they become irregular, and continue so till the thirteenth inclusively; the fourteenth they are irregular again, and remain so till the twenty-first, from whence they are irregular to the twenty-seventh. When the Tides of the *Euripus* are regular, they flow twice in four or five and twenty Hours, as in the Ocean, and ebb as often, losing near an Hour every Day, and are about as long coming in as going out: But during the Time of their Irregularity they commonly flow and ebb nine or ten times in twenty four Hours, unless the Wind blows hard, and even then six or seven; nay, our Author himself, in the Space of an Hour and a half, saw the Water change its Course three times, though the Wind was pretty strong against it. The Tides of this Channel usually rise a Foot or a little more, seldom reaching to two Feet; and between the Flux and Reflux the Water seems to stand still for a short

short Time, insomuch that Feathers or Straws cannot be perceiv'd to move on its Surface. From these Observations of Father *Babin* it is easy to reconcile the Authors who have written so differently on the *Euripus*; for those who mention no more than two Fluxes and Reflexes in twenty-four Hours, as in the Ocean, have only observed its Motion during the Days of its Regularity: Nor have the Ancients deliver'd a Falshood, in saying there are seven Reciprocations in one Day, for that happens even when the Winds trouble and retard the Flood; and the Father assures us, that in still Weather the Tides sometimes ebb and flow twelve or fourteen times in the Space of four or five and twenty Hours, as he himself had observed, and was told by the Millers, who see their Wheels change according to the Course of the Water*.

* The Phænomena of the Tides, which are really astonishing, and have perplex'd the greatest Philosophers, are well explain'd by Dr. *Halley* from the *Newtonian* Principle of Gravitation and Attraction, whereby on the Earth all Bodies have a Tendency towards its Centre, and are also attracted towards the Sun, Moon, and other Planets. If the Earth were not affected by the Action of the

Sun and Moon, it is not to be doubted but the Ocean, being equally pressed by the Force of Gravity towards the Centre, would continue in a perfect Stagnation, always at the same Height, without either ebbing or flowing; but it being demonstrated that the Sun and Moon have a like Principle of Gravitation towards their Centres, and that the Earth is within the Activity of their Attraction, it plainly

WE shall conclude this Article with observing, that though the *Mediterranean* has no sensible Tides, except some small ones in the Gulf of *Venice*, that of the *Euripus* abovemention'd, &c. yet a strong Current continually sets into it from the Ocean through the Streights of

follows, that the Equality of the Pressure of Gravity on the Earth must be disturbed, and the Ocean, being fluid and yielding to the least Force, shews by its rising where it is less pressed, and where it is more press'd by its sinking. Now the Moon being very near the Earth in Comparison of the Sun and other heavenly Bodies, our Tides are chiefly regulated by its Motions; and accordingly we observe, that the Sea flows (as we call it) as often as the Moon cuts the Meridian, whether above or below the Horizon; and ebbs when she passes the Horizon, both in the Eastern and Western Point: But as the Moon is twelve Hours twenty-four Minutes in passing from the superior to the inferior Meridian, so every Tide of Flood is four and twenty Minutes later than the preceding one; and thus we have two Fluxes and two

Refluxes every five and twenty Hours. The high Spring-Tides upon the New and Full Moons are occasion'd by the Attraction of the Sun conspiring with that of the Moon, whereas in the Quarters the Tides are weaker, because the Sun raises the Water where the Moon depresses it, and on the contrary. The Reason why the Sun's Attraction has no greater Influence on the Tides, notwithstanding he is ten thousand times bigger than the Earth and Moon, is owing to the very small Proportion the Semidiameter of the Earth bears to his immense Distance. It is also observed, that the Equinoctial Spring-Tides in *March* and *September* are the highest, and the *Nep.* Tides the lowest of all others; for the nearer the Moon approaches the Poles, the less is the Agitation of the Ocean, which is greatest of all when

Gibraltar,

Gibraltar, and likewise through the *Hellepont* from the *Euxine* and the *Propontis*; whence one would imagine, that instead of not swelling like the Ocean, it should rather overflow its Bounds, and drown the adjacent Countries. What becomes of the vast Quantity of Water thus

the Moon is in the Equinoctial, or farthest distant from the Poles; whence the Sun and Moon being either conjoin'd or opposite in the Equinoctial produce the greatest Spring-Tides, and the subsequent Neap-Tides are always the least, being produced by the tropical Moon in the Quarters.—But besides these general Tides, which would happen regularly every where, if the Earth were all cover'd with a deep Sea, there are many others in which we find a vast Diversity, and not to be accounted for without an exact Knowledge of all the Circumstances of the Places, as the Position of the Land, the Shallowness of the Water, the Narrowness of the Channels, &c. for the Tide is always found to set strongest where the Sea is narrowest, the same Quantity of Water being in that Case to run through a smaller Passage.

This is evident between *Portland* and *Cape la Hague* in *Normandy*, where the Tide runs like a Sluice, and would be yet stronger between *Dover* and *Calais*, if it were not check'd by the Tide coming round the Island. In short, every thing relating to the Tides is to be accounted for from the *Newtonian* Doctrine; as why Lakes, such as the *Caspian* Sea, and midland Seas, such as the *Baltic*, the *Black Sea*, and the *Mediterranean*, have scarce any sensible Tides; for Lakes, having no Communication with the Ocean, can neither increase nor diminish their Water, so as to rise or fall; and Seas that communicate with it by such narrow Inlets, and are of such a vast Extent, cannot in a few Hours receive or empty Water enough to raise or sink their Surface in a sensible Manner. To conclude, Sir *Isaac* accounts for the

pour'd into the *Mediterranean*, is a Speculation that has long employ'd the Philosophers. Dr. *Smith* accounts for it by supposing an Under-Current to carry off as much Water as the upper one brings in; and such Currents it is probable there are in several Parts of the Sea: But Dr. *Halley*, without having Recourse to this Hypothesis, solves the Phænomenon from the great Evaporation. The Result of an Experiment made by this excellent Author to find the Quantity of Vapour rais'd from the Sea by the Action of the Sun, was this, that the Thickness of Water evaporated from the Surface of the Sea in Summer is one fifty third Part of an Inch in the Space of two Hours; which, for the Ease of Calculation, being supposed only a sixtieth Part, the Quantity exhaled in twelve Hours will be one Tenth of an Inch. On this Principle every Mile square will be found to evaporate, in twelve Hours, 6914 Tuns of Water; and every square Degree, supposed of 69 *English* Miles, will evaporate thirty-three Millions of Tuns. Now the Area of the *Mediterranean* being estimated at 160 square De-

grees, Tides in the Port of *Tonquin* in *China*, (where there is but one Flood and Ebb in twenty four Hours, and none at all when the Moon is near the Equinoctial) from the Concurrence of two Tides, the one out of

the Great *South-Sea*, the other out of the *Indian* Sea between the Islands; and as the Appearance of these Tides are naturally deducible from his Principles, it is a great Argument of the Truth of his whole Theory.

grees,

grees, it will lose in Vapour in a Summer's Days 5280 Millions of Tuns; and yet this Quantity of Vapour, great as it is, is only the Remains of what is raised another way, *viz.* by the Winds, which sometimes sweep off the Water faster than it is exhal'd by the Heat of the Sun. As to the Quantity of Water the *Mediterranean* receives, the Doctor supposes the *Ebro*, *Rhone*, *Tyber*, *Po*, *Danube*, *Niefter*, *Boristhenes*, *Tanais*, and *Nile*, to furnish each of them ten times as much Water as the *Thames*; not that any of them are in reality so great, but so to allow for the lesser Rivers that fall into it: And as the *Thames* is computed to evacuate daily 20,300,000 Tuns of Water, the nine Rivers above-mention'd will only evacuate 1827 Millions of Tuns in a Day, which is little more than a Third of what is raised in that Time in Vapour. To this vast Store of Vapours raised by the Sun, Winds, or subterraneous Fires, from the Sea, Lakes, Rivers, &c. the Doctor refers the Origin of Springs, though other ingenious Naturalists ascribe them to different Causes, as we have heretofore observ'd.*

FOSSILS.

THE *Turkish* Dominions in *Europe* being very extensive, and the Soil various, afford a great Variety of useful Fossils, and some Mines

* See the Note in Vol. I. p. 225.

of the richer Metals. Near *Siderocapsa*, a Town of *Macedonia* lying North East of *Salonichi*, Mines of Gold were discover'd in the Time of *Philip* the Father of *Alexander* the Great, from whence the Town was anciently call'd *Cbrysitis*. These Mines are still wrought, and *Martinieri* tells us the Grand Signior receives from them ten thousand Ducats every Month.—*Argentiere*, formerly *Cimolus*, a little Island in the *Archipelago*, takes its modern Name from its Mines of Silver, which were once wrought; and M. *Tournefort* informs us that the Workhouses and Furnaces where they used to prepare the Metal are still be seen, but at present the Inhabitants dare not meddle with that Sort of work without Leave of the *Turks*, who would make it a Pretext for loading them with heavy Taxes.—*Siphanto*, another Island of the *Archipelago*, was anciently famous for its Mines of Gold and Silver; but the Places where they were are now scarce known to the Inhabitants. The Island however abounds with Lead, according to M. *Tournefort*, who tells us, that about the Middle of the last Century some *Jews* came thither by Order of the *Porte* to examine into the Mines; but the Natives, fearing they should be forced to work them, bribed the Captain of the Galliot that brought over the *Jews* to sink his Vessel, which he accordingly did by boring Holes in it while the *Jews* were aboard, who all went to the Bottom with a Cargo of Ore, whilst the Captain sav'd himself in his Long-Boat. After this

this some other *Jews* were sent on the like Errand, but met with no better Success; for the *Siphantines* gave a Sum of Money to a *French* Corsair to cannonade and sink the Galliot when she had got her Lading: So that both *Jews* and *Turks* gave over their Enterprize.

DIVERS Parts of *Greece*, and several Islands in the *Archipelago*, abound with excellent Marble, though many of the Quarries so famous in Antiquity are now lost or exhausted. Our Countryman Mr. *Wheler* mentions a *Greek* Monastery call'd *Penteli*, situated under a Mountain of the same Name, which he says is a perfect Rock of white Marble. Here he observ'd many curious Grotto's, lined with beautiful Congelations, which are not uncommon in such Places; and at a little Distance he saw the Quarries, from whence vast Quantities of Marble had been dug for the finest Structures in *Athens*; which made him no longer doubt but this was the Mountain *Pentelicus*, so often mention'd by *Pausanias* on account of its Marble.—Almost every one knows how famous the Island of *Paros* has ever been for its beautiful Marble, which is more frequently taken notice of in the Writings of the Ancients than any other Kind, and was chiefly used for Statues by the most celebrated Sculptors of Antiquity. The *Parian* Marble is of a firm, compact, and close Texture, considerably heavy, and of a very elegant White, but generally with some Admixture of a faint blueish Cast, and frequently vein'd with blue

blue Streaks of different Breadth. It is extremely bright and glittering, and capable of the brightest Polish of all the Marble Class; which, together with its not being very difficult to cut, has made it a favourite Kind among our modern as well as among the ancient Statuaries. Being principally used by those Artists, we now know it under the Name of *Statuary-Marble*; and yet M. *Tournefort* affirms, that the best Judges prefer the *Italian* to the *Grecian* Marble, which gives false Lights, and flies in little Bits if not cautiously managed, whereas that of *Italy* obeys the Chissel, being of a much finer and closer Grain.—To the Island of *Paros* we are indebted for one of the noblest Monuments of Antiquity in the World, viz. the *Arundel Marbles*, which are now preserv'd in the University of *Oxford*, as was mention'd towards the Beginning of this Work*.

THE Island of *Milo* is remarkable for its hot Springs, and the Iron, Alum, and Sulphur with which it abounds. The Sulphur of *Milo*

* See Vol. I. p. 102, where some Account is given of these famous Marbles; to which we may add, that the Inscriptions on them contain the most noted *Greek* Epocha's, from the Reign of *Cecrops*, the Founder of the *Athenian* Monarchy, to *Diogenes* the Magistrate; that is, for the Space of 1318 Years. Hence we learn the Time

when the most famous Cities of *Greece* were founded, when the greatest Men lived that were the Ornaments of that Country, and other Particulars which give great Light to the History of those Ages.—Archbishop *Usher* is of Opinion this Chronicle was written 263 Years before our Saviour.

was esteem'd by the Ancients, being particularly commended by *Pliny* and *Dioscorides*. *M. Tournefort* says it is very beautiful, having a greenish shining Cast, and is found in Lumps by digging up the Ground, and in large Veins in the Quarries where they get their Mill-stones. There are several Mines of Alum in the Island, the Entrance into which is narrow. and the Vaults or Chambers scarce high enough for a Man to stand upright. Here the Alum grows in a Sort of Flakes about an Inch thick, and as these are taken away, new ones in a short Time supply their Places. But the greatest Curiosity this Island affords is the *Plumose* or *Feather'd* Alum, so call'd from its Form, being an Efflorescence of Alum compos'd of strait parallel Threads or Fibres resembling the Vanes of a Feather*. The Pieces of this Alum, in

* This is the true *Alumen plumosum* of the Ancients, and what the *Greeks* call'd *Schiston* or *Trickitis*, from its splitting into a Number of whitish Hairs or Capillaments. It has been strangely confounded, even by some who have profess'dly written on Drugs, with a Species of the *Lapis Amiantus*; and this Stone is at present known in the Shops under the Name of *Alumen plumosum*, though it has neither the Taste nor any one of the Qualities or Proper-

ties of Alum. It is therefore happy for us, (as *Mr. Hill* observes) that our Physicians have forgot to prescribe the *Alumen plumosum*, since the Apothecaries would certainly use the *Amiantus* instead of it; and how improper the latter must be for internal Use, may be judg'd from its Effects when applied externally, its *Spiculæ* making their Way into and lodging themselves in the Skin, and occasioning Swellings, with the most violent and intolerable Itching.

the

the Caverns where they have Rest and Room enough to shoot, are found an Inch and a half or two Inches in Length, and as thick as one's Finger; and are of the same Kind, but larger, with the fibrous Efflorescences found on the Surface of *Irish* Slate, and other Alum-Ores of our own Country. Besides the Feather'd Alum, the Caverns of *Milo*, whose Roofs, Sides, and Floors are all of Alum-Ore, afford us a liquid Alum, that is, a strong Solution of Alum in Water: For the Vapours sent up continually from the inner Parts of the Earth are condensed in these Caverns into Drops, which, as they fall from the Roofs and trickle down the Sides, wash off and dissolve the plumose Efflorescences, and are collected in the Cavities of the Floor in little Puddles, which are sometimes so highly saturated with this Salt as to be white and milky, and sometimes less sated, and clear as common Water. In both Cases, however, the Water contains a great Quantity of Alum in a fluid State; and this is undoubtedly the Origin of what some have supposed to be a native liquid Alum. This Solution is much more acrid than that of common Alum; and M. *Tournefort* tells us, that when the Natives of *Milo* are troubled with the Itch, they go and sweat in some of their warm Grotto's, foment their Skin with this aluminous Liquor, and then wash themselves in the Sea, which generally effects a Cure.

THE same ingenious Author accounts for the Formation of Alum and Sulphur in the Island of *Milo* in the following Manner. He observes that the Island is almost entirely a hollow Rock, spungy, and soak'd, as it were, with the salt Water of the Sea, which enters into a Multitude of Openings on the Coast, and is thence convey'd to the minutest Cavities. Here he supposes, the Sea-Salt undergoes a Sort of chymical Process, the subterraneous Fires, which are continually burning in this Island, causing an acid Spirit to separate from the Salt, not unlike that we draw from Sea-Salt by common Fire. This Acid gradually penetrating the hardest Rocks, dissolves them, incorporates with them, and is converted into Alum; in like manner as we see Spirit of Salt, when pour'd upon common Stones or Chalk, produces aluminous Concretions. The same acid Spirit, mix'd with the bituminous Matter that pervades the Veins of the Earth, occasions the Formation of Sulphur; for it is well known that Sulphur is a fat Substance fix'd by an acid Spirit; and the Sea-Water contains oily as well as saline Particles, both which are strain'd from it by the singular Structure of the interior Parts of the Island.

EMERY, according to M. *Tournefort*, is found in great Plenty in the Island of *Naxia*, where he says they turn it up as they plough the Ground, and sell a Quintal of it for a Crown, their Quintal being a hundred and

forty Pounds. This Mineral is extremely hard and very heavy, and the Consumption is considerable amongst Armourers, Cutlers, Smiths, Glaziers, Lapidaries, Masons, and other Artificers, being used in polishing and burnishing Iron and Steel Works, and in cutting Glass, Marble, and precious Stones. Mr. *Hill* takes it to be nothing but an Iron-Ore, and to have a near Relation to the Magnet; neither of them, though usually supposed distinct natural Bodies, being properly so, any more than any other of the Ores of Metals. It is found in Masses of no determinate Shape or Size, and is usually of a dusky brownish Red on the Surface, but when broken is of a bright Iron-Grey, though not without some Tinge of Redness, and is spangled all over with shining Specks, which are small Flakes of Talc highly impregnated with Iron. Sometimes it is very red, and contains Veins of Gold; but this is rarely to be met with. The Sort that is commonly used is found in the Island of *Guernsey*, *Tuscany*, and many Parts of *Germany*.

THE Island of *Argentiere* (formerly *Cimolus*) abounds with a heavy, crumbly, whitish Kind of Earth or Marle, the *Terra Cimolia* of the Ancients. It is also found in other Islands of the *Archipelago*, and generally lies either on the Surface or a little below it, being moderately moist, but not at all tough or viscid. It is easily cut through with the Spade, which leaves it rough and uneven, and often breaks it into
rude

rude irregular Pieces. When dried it becomes of a pure bright White, and of a closer Texture. It is very soft to the Touch, is easily broken between the Fingers, adheres firmly to the Tongue, and melts readily in the Mouth, but leaves a considerable Grittiness between the Teeth. This Marle, being fattish and soapy, is used by the Inhabitants of the Island in washing of Linen; and *Pliny* mentions its being used by the Ancients in cleaning of Cloths. They likewise used it in Medicine, but it has little Share in the modern Practice.—What we call *Cimolia alba* is the white Tobacco-pipe Clay, from which that of the Ancients is easily distinguish'd by its Want of Tenacity and its alkaline Quality; and to our Fuller's-Earth we have given the Name of *Cimolia purpurascens*, whereas the ancient purple *Cimolia* was in all Probability the *Steatites* or *Soap-Rock*, as we commonly call it, which is a hard white Clay with Veins of Purple, not only found in the Islands of the *Archipelago*, but plentifully in many Parts of *Cornwall* and *Devonshire* *.

* This (says *Mr. Hill*) is of all the *English* Earths the most worthy making Trials of for imitating the fine Porcelain Ware of *China*. *Dr. Woodward* much recommends it on this Account, and repeated Trials have

been made of it, some of them very lately, in all which it has afforded the finest earthen Ware ever made with us, and promises fair to equal, with right Management, any in the World.

THE *Lemnian* Earth, so call'd from its being dug in the Island of *Lemnos*, deserves to be mention'd on account of the great Reputation it has had in all Ages for its medicinal Virtues. There are three Sorts of this Earth, *viz.* white, yellow, and red, of which the last is most esteem'd. It is a heavy, close, compact Earth, of a regular Texture, and pale red Colour; of a smooth and even Surface, but not glossy; melts slowly in the Mouth, and has an astringent Taste, but leaves some Grittiness between the Teeth; does not stain the Hands, nor break readily between the Fingers. As this Earth is found no where but in *Lemnos* that we know of, so the true medicinal red Sort is only dug out of one Pit, in which it constitutes the lower Stratum, lying underneath the yellow. This Pit is open'd only once a Year, and that with great Solemnity, the *Greek* Priests rehearsing some Forms of Prayer, at which all the considerable Inhabitants of the Island, both *Greeks* and *Turks*, are present. At that time they take out as much as they think sufficient for the Year's Demand, the greatest Part of which is sent to *Constantinople* to the Grand Signior, with whose Seal it is mark'd; and the rest is sold to Merchants upon the Spot, partly seal'd, and partly unseal'd; but those who buy it rough generally get it seal'd before they offer it to Sale. That seal'd in the Island has usually some *Arabic* Characters upon it, and on the other we often find a Crescent and three Stars,
the

the Infcription *Terra Lemnia*, and under it two Palm-Branches: But notwithstanding this and other Earths are generally imported to us sealed, they are liable to many Adulterations, and none of them more so than the *Lemnian*, which is so often counterfeited and sophisticated, both here and by the *Turks* themselves, that few People, except those who have seen it dug out of the Pit, are able to discover the Imposture. — This Earth yields a small Quantity of volatile urinous Salt, of another not much different from Sea-Salt, and of a bituminous Oil; so that it is not a mere dead Earth, endued with no other Quality but that of an Absorbent, as some of the Moderns have imagined. It is good in Dysenteries, Diarrhoeas, and Hæmorrhages; is an admirable Diaphoretic, and useful in malignant Fevers.

THERE is another Kind of Earth call'd *Turky Earth*, which is sometimes sold instead of the *Lemnian*, but it is not of so compact a Texture, though it is considerably heavy. It breaks easily between the Fingers, and is reddish on the Surface, but more of an Ash-Colour within. Great Plenty of it is dug in the Neighbourhood of *Adrianople*, and it is used by the *Turks* as a Sudorific and Astringent, and is famous among them in pestilential Diseases.

WE might here enumerate several other Fossils of the like Nature, but we apprehend the Reader would not thank us for enlarging on so insipid a Subject; and therefore we shall only

add another which Mr. *Wheler* tells us is dug out of a Hill near *Thebes*, in the Road that leads to *Negropont*. This is a Stone, as he calls it, (perhaps a Kind of Clay) which, when first taken out of the Pit is of the Colour of new Cheese, and almost as soft, but when it is dry it becomes very hard, glossy, and as white as Snow. The People of *Thebes* carve this Stone very curiously into Bowls for Tobacco-Pipes, the best of which are sold for Five-pence or Six-pence apiece, and a worse Sort at about half that Price.



VEGETABLES.

AMONGST the many curious Plants to be found in the *Turkish* Dominions, which afford the Botanist a very ample Harvest, none seems to deserve our Attention more than the *Tragacantha*, or *Goat's-Thorn*, which grows plentifully in several Parts of the *Levant*, and particularly on Mount *Ida* in *Candia*. The Gum we corruptly *Gum Dragon* issues spontaneously from this Plant towards the End of *June* and the two following Months, at which Time the nutritious Juice, thicken'd by the Heat, bursts the Vessels that contain it; and being coagulated into small Threads, these make their Way by little and little through the Bark, are harden'd in the Air, and form'd either into Lumps or slender Pieces twisted like Worms, of different Lengths according to the Quantity of extravasated.

travaſated Matter. The Contraction of the Fibres of the Plant, M. *Tournefort* ſuppoſes, may contribute to the Expreſſion of the Gum; for theſe delicate Fibres, like thoſe of Flax, being laid bare and trampled under Foot by Men and Beaſts, are ſhrivell'd by the Heat, and facilitate the Emanation of the extravafated Juice.—This Gum is of different Colours, ſome white, ſome greyiſh, ſome red, and ſome almoſt black; but that which is white, clear, ſmooth, and twiſted like Worms, is reckon'd the beſt. Externally uſed it is efficacious in a Dyſentery, and diſſolved in Milk or Roſe-Water is good for the Redneſs and acrimonious Humours affecting the Eyes, and for Aſperities of the Eye-lids. It is of Service in a Hoarſeneſs, Spit-ting of Blood, and the Strangury; and four or ſix Grains of it, exhibited in Milk or Water, are effectual againſt voiding of Blood by Urine. It is alſo reckon'd ſtrengthening in ſeminal Weakneſſes.

THE Iſland of *Candia* likewise affords Plenty of the *Ciſtus ladanifera*, (the *Ledon* of *Dioſcorides*) a Shrub yielding an odoriferous Sort of Gum call'd *Ladanum*, which oozes out of the Leaves like a fatty Dew, in ſhining Drops, as clear as Turpentine. This Shrub is full of Branches, and riſes to the Height of two or three Feet, bearing a Flower an Inch and a half in Diameter, conſiſting of five roſe-colour'd Leaves, mark'd with a yellow Speck in the Middle. From the Centre of theſe Leaves aſiſe a great many

many yellow Threads or Chives, which surround the Pistil; and when the Flower is gone the Pistil is changed into a Fruit or Cod, containing abundance of small angular Seeds, of a red Colour, and disposed in five different Vessels or Apartments. The chief Branches of this Shrub are about the Thickness of one's little Finger, and are divided into Sprigs bearing Leaves that grow by Couples, of a dark Green, and waved at the Edges. The Gum issuing from the *Cistus* is gather'd in hot calm Weather, in the Months of *July* and *August*, by brushing it off the Leaves with a Sort of Whip, composed of a great Number of Lashes or Straps, to which the Ladanum sticks when they are dragg'd over the Shrub, and from whence it is afterwards scraped and made up into a Mass or Cakes of different Sizes. *Dioscorides* tells us, that in his Time they used to comb off the Ladanum from the Beards and Thighs of the Goats which fed upon the Leaves of the *Cistus*; but it is now gather'd in the Manner abovemention'd, as *M. Tournefort* relates, who saw the Country People employ'd about it, and says the Work is rather unpleasant than laborious, as it must be done in the Heat of the Day, and when there is no Wind stirring; and yet the purest Ladanum is not free from Filth, because of the Dust blown upon it in windy Weather. Besides this, to increase its Weight, they have a Trick of mixing it with a fine blackish Sand; which Cheat is discover'd
by

by chewing it, or straining it after it is dissolv'd.—This Gum mollifies, digests, maturates, and attenuates; and externally applied is good against the Tooth-ach, Heartburn, hysteric Fits, and Pains of the Stomach. In Dyenteries and Hoarseness it is an excellent Balsamic.

WE have another Gum obtain'd from a Plant call'd *Panax Herculea*, a Sort of *All-beal*, which grows plentifully in *Achaia*, *Bæotia*, and other Parts of *Greece*, and may be seen in the Gardens of the Curious. From Incisions made in the Stem of this Plant, especially near the Root, during the Summer-Months, a Juice flows which concretes spontaneously, and is call'd in the Shops *Opopanax*. If good, it is externally of a yellow Colour, but internally white, or somewhat inclining to yellow, of a bitter Taste, a strong Smell, and pinguious Consistence.—As to its Virtues, it mollifies, digests, discusses Flatulencies, and purges thick and viscid Phlegm from the Brain, Nerves, Joints, and *Thorax*. The Roots are also said, by those who import them, to be effectual in all cold Affections of the Brain and Nerves, Disorders of the Breast, and violent Pains of the Stomach; for Obstructions of the *Viscera*, and Diseases of the Womb, Bladder, and Kidneys; on which account they are of Service in inveterate Pains of the Head, Vertigo, Epilepsy, Lethargy, Convulsions, Palsies, Asthma, Jaundice, and Dropsy.—This is one of the celebrated *Panacea's* of
the

the Ancients, to which they attributed such wonderful Virtues.

WE ought not here to omit taking notice of a very useful Production of the vegetable Kind, viz. the *Cotton-Bush*; which is an annual Plant, cultivated in Greece, and in several of the Islands of the *Archipelago*, as well as in many Parts of the *Asiatic Turkey*, the *East-Indies*, and other Countries. This Plant grows as high as a Rose-Bush, has Leaves like Maple, and puts out yellow Flowers, which leave behind them little Cods that increase as they ripen to the Size of a Walnut, and being open'd by the Heat of the Sun discover a Down of exceeding Whiteness, which is the Cotton. The Down encompasses several little Beans, which are the Seeds of the Plant, and are separated from the Down by a Sort of Mill, which being work'd by the Motion of a Wheel, the Cotton falls on one Side, and the Seed on the other. There is also another Kind of Cotton-Plant, call'd by Botanists *Gossypium herbaceum*, which creeps along the Ground as the Vine would do if unsupported; and the Cotton of this is the most esteem'd.—Cotton makes a considerable Article in Commerce, being spun and manufactur'd into Stockings, Waistcoats, Quilts, Tapestry, Curtains, and various other Conveniencies. Muslins are made entirely of Cotton, and it is frequently mix'd with Wool, Silk, and Flax in the Composition of other Stuffs. Abundance of Cotton grows about *Smyrna*, from whence ten thousand Bales

Bales are annually exported, and as much at least is spent in the Manufactures of the Country.—As to the medicinal Virtues of Cotton, the Seeds of it are reckon'd good in Disorders of the Kidneys and Liver, but prejudicial to the Head and Stomach. They are also esteem'd excellent for a Cough or Difficulty of Breathing, and are serviceable in the Stone and Dysentery, for by their lenitive Quality they obtund the acrid and exulcerating Humours. The Oil expressed from the Seed removes Spots of the Skin, and cures running Sores of the Head; and they are likewise said to restrain immoderate Fluxes of the *Menses*. The Wool burnt and reduced to Powder is sometimes put into Wounds to stop the Effusion of Blood*.

* It is observ'd that Cotton applied to Wounds, instead of Linen, produces an Inflammation. M. *Leeuwenhoeck*, examining into the Reason of this with a Microscope, found its Fibres to have each two flat Sides; whence he concluded, that its minute Parts have two acute Angles or Edges, which being not only more thin and subtile than the Globules whereof the fleshy Filaments consist, but also more firm and stiff, they

hurt and wound the Globules of the Flesh, and cut the new Matter that approaches them; and that with the more Ease, as this Matter, not having attain'd the Firmness and Consistence of Flesh, is the less able to resist their Attacks: Whereas the Linen ordinarily used in Wounds, being composed of little round Parts, very close to each other, form larger Masses, and is thus incapable of injuring the fleshy Globules.

ANIMALS.

ANIMALS.

THERE is a great Variety of the feather'd Species which frequent the Islands of the *Archipelago* and the Coasts of *Greece*, but none of them more remarkable than a Sort of Sea-Fowl call'd *Toubana* by the modern *Greeks*, and thought by *M. Spon* to be the *Onocrotalus* of *Pliny*. This Bird is what we call a *Pelican*, and is described by *Sir George Wheler*, who took one of them near *Lepanto*, to be as big as a Swan, (but its Neck not so long) web-footed, and of a greyish Colour, like a common Goose. It has a Beak seventeen or eighteen Inches long, and about two Inches broad where widest; but when it opens, the under Part of the Beak, being of a flexible Nature, expands itself to the Breadth of five or six Inches. To this Beak, near the Entrance of the Throat, is join'd a Bag of a skinny Substance, which when it is empty, and the Bird's Mouth shut, shrinks together like a Bladder before it is blown, and is scarce to be seen; but when fill'd it stretches to an incredible Bigness, so as to contain ten or a dozen Quarts of Water. In these Bags (as the *Greeks* inform'd our Author) the *Pelicans* carry Fish and Water to their Young ones in the Mountains where they breed, for which Purpose they chuse the most unfrequented Places. The Throat of this Fowl is large enough to swallow a Carp twelve Inches long; and the
upper

upper Part of its Beak terminates in a sharp Hook, which perhaps is of Service to it in catching Fish, on which it chiefly subsists. Its Gizzard is not a round fleshy Substance, like that of other Fowls, but somewhat harder than the Guts,, about six Inches long, and above an Inch in Diameter. Its Lungs are of a membranous Texture, sticking fast to the Ribs on each Side, and of a reddish Colour.—The Pelican is said to live to a great Age; and some say there are two Sorts of Pelicans, the one feeding on Fish, (which is that here described) the other a Land-Fowl, feeding on venomous Creatures.

SIR George Wheler has likewise given us a Description of a *Tree-Frog*, or *Spordaca*, as the *Greeks* call it, which he says is shaped like other Frogs, but something smaller, and of a deep green Colour. When it lies close to the Ground, it resembles one Half of a large Walnut with the convex Part uppermost; for then its Feet are so doubled underneath it as not to be discern'd. In Nature, however, it is very different from the common Frogs; for whereas these love to be always amongst the Grass or in the Water, this Kind delights to climb Shrub, Bushes, and Trees, and to sit chirping on the Twigs and Branches. For this Purpose Nature has made a peculiar Provision, its Toes ending in little round Knobs, about the Bigness of a Pin's-Head, out of which issues a clammy Substance that often preserves it from falling when

it leaps from one Bough to another; for if it can but touch the smallest Twig, or the smoothest Leaf, with any one of its Feet, it sticks fast to it by that viscous Matter, and surprizingly recovers its whole Body. This may seem incredible, but our Author observed it very often, and could not perceive that the Frog held by grasping with its Feet, as Birds and Squirrels do, but merely by the Strength of the glutinous Substance discharged from its Toes; which, however, we must suppose it can emit or retain at pleasure, or else it would prevent its leaping as well as falling. This Creature, when put into the Water would swim like other Frogs, but never offer'd to dive, and made all possible Haste out of that cold Element.

As Mount *Hymettus* in *Greece* was always famous for its excellent Honey, the Ancients imagining that Bees were first bred there, and that the Swarms dispersed over the World were only Colonies from that Mountain, we think this will be no improper Place to give some Account of those curious Insects, so remarkable for their Sagacity and Oeconomy, and whose Labours are so advantageous to Mankind.— With respect to their Form, the Bee is divided by two Ligaments into three Parts or Portions, the Head, the Breast, and the Belly. The Head is armed with two Jaws and a Trunk, the former of which play like two Saws, opening and shutting to the Right and Left. The Trunk is long and taper, and extremely pliant
and

and flexible, being destin'd by Nature for the Insect to probe to the Bottom of Flowers through all the Impediments of their Chives and Foliage, and drain them of their treasur'd Sweets. But were this Trunk to be always extended, it would prove incommodious, and be liable to be injured by a thousand Accidents: It is therefore of such a Structure, that, after the Performance of its necessary Functions, it may be contracted, or rather folded up; and besides this, it is fortified against all Injuries by four strong Scales, two of which closely sheath it, and the two others, whose Cavities and Dimensions are larger, encompass the Whole.— From the middle Part or Breast of the Bee grow the Legs, which are six in Number; and at the Extremity of the Paws are two little Hooks, discernible by the Microscope, which appear like Sickles with their Points opposite to each other. The Wings are four, two greater and two smaller, which not only serve to transport them through the Air, but, by the Noise they make, to give Notice of their Departure and Arrival, and to animate them mutually to their several Labours. The Hairs, with which the whole Body is cover'd, are of singular Use in retaining the small Dust that falls from the Chives of the Flowers, of which some think the Wax is form'd, as will be observ'd hereafter.—The Belly of the Bee consists of six Rings, which slide over one another, and may therefore be lengthen'd or contracted

at pleasure: And the Inside of this Part of the Body contains the Intestines, the Bag of Honey, the Bag of Poison, and the Sting. The Office of the Intestines is the same as in other Animals. The Bag of Honey is transparent as Crystal, containing the sweet Juices extracted from Flowers, which the Bee discharges into the Cells of the Magazine for the Support of the Community in Winter. The Bag of Poison hangs at the Root of the Sting, through the Cavity of which, as through a Pipe, the Bee ejects some Drops of this venomous Liquor into the Wound, and so renders the Pain more excessive. The Mechanism of the Sting is admirable, being composed of two Darts, inclosed within a Sheath that tapers into a fine Point, near which is an Opening to let out the Poison. The two Darts are ejected through another Aperture, which, being arm'd with several sharp Beards like those of Fish-Hooks, are not easily drawn back again by the Bee; and indeed she never disengages them, if the wounded Party happens to start, and put her into Confusion; but if one can have Patience to continue calm and unmoved, she clinches those lateral Points round the Shaft of the Dart, by which means she recovers her Weapon, and gives less Pain to the Person stung. The Liquor, which at the same Time she infuses into the Wound, causes a Fermentation, attended with a Swelling, which continues several Days; but that may be prevented by immediately pulling

pulling out the Sting and enlarging the Puncture, to let the venomous Matter have Room to escape.

LET us now consider the Generation, Polity, and Labours of these Insects, the true Knowledge whereof is very much owing to the modern Invention of Glass-Hives, through which all the Secrets of the Community are laid open to a curious Observer. Any Person who carefully examines a Hive at different Seasons of the Year, will distinguish three Sorts of Bees; of which the far greater Number are the common working Bees, who do all the Business of the Hive, and seem to be neither Male nor Female. The second Sort, call'd *Drones*, are the Males, which are somewhat larger, have no Sting, nor ever stir from the Hive, but live upon the Honey prepared by the others. The third Sort is a much larger and longer-bodied Bee, of which there is often but one in a Hive, at least but one in every Swarm or Colony of young Bees, who are from time to time detach'd from the Hive in search of another Habitation. This large Bee is what the Ancients call'd the *King*, from the Respect they always saw paid to it by the other Bees; but being the Female, the Moderns more properly give it the Title of *Queen* or Mother of the Swarm.

WHILE the Hive is sufficient to contain the Bees without Inconvenience, the Society live peaceably together; but when their Numbers

are multiplied so that their Habitation is too small, the young Brood quit the Place of their Nativity, (as we have just hinted) and fly in quest of a new Settlement. The Swarm that goes out consists of the common Bees, under the Conduct of one Female or Queen; or if two Queens come out of the same Hive, then the Body of common Bees divides into two Parts, each following one Female: Both Parties, however, when they alight out of the Air, usually settle near each other on a Branch of a Tree; and then those Bees which form the smallest Swarm go off, one by one, to the other Cluster, deserting the Queen they follow'd, who is at length murder'd by her Subjects. The Swarm being thus united and hanging down from the Tree, the Countryman, who is always vigilant on these Occasions, provides for their Accommodation a Hive rubb'd with Balm, Thyme, and other odoriferous Herbs, into which he gently brushes them from the Branch, and carries them to a Stand prepared for that Purpose. All this the Bees bear very patiently, and after they are a little compos'd, begin to think of forming themselves convenient Apartments in their new Habitation.

WHEN they set about this Work, it is observ'd they divide themselves into four Bands, one of which is destin'd to the Fields to provide Materials for the Structure; the second works upon these Materials, and forms them into a rough Sketch of the Dimensions and
Partitions

Partitions of the Cells ; the third Band examines and adjusts the Angles, removes the superfluous Wax, polishes the Work, and gives it its necessary Perfection ; and the fourth is employ'd in bringing Provisions to the Labourers. M. *Maraldi* takes notice, that the Bees employ'd in polishing the Combs work longer than those that build them, because polishing is not so laborious. They begin their Work at the Top of the Hive, continuing it downwards to the Bottom, and from one Side to another ; and to make it the more solid, they use a Sort of temper'd Wax, which is pretty much like Glue. The Form of the Cells of the Honey-Comb is hexagonal, which Figure, besides what is common with a Square and equilateral Triangle, has the Advantage of including a greater Space within the same Surface.*

THE Expedition of the Bees in their Labour is almost incredible ; for, notwithstanding the Elegance and just Proportions of the Work,

* The best Mathematician, as Dr. *Derham* observes, could not have chosen a more proper Figure than the Bees do for such a Combination of Apartments. Circular Cells indeed would have been the most capacious ; but this would by no means have been a convenient Figure, because much of the Room would have been taken up by

Vacancies between the Circles. It was therefore necessary to make use of some of the rectilinear Figures, amongst which the only proper ones were the Triangle, the Square, and the Hexagon ; and the Bees (says *Pappus Alexandrinus*) wisely chose that Figure which consisted of most Angles, as supposing it the most capacious.

they

they are so indefatigable, that in one Day's time they will finish a Honey-Comb a Foot long and six Inches broad, capable of receiving three thousand Bees. When the Cells are compleated, the Queen takes Possession of those she likes best to deposit her Eggs in, and the rest are left to be fill'd with Honey. She lays one Egg in each Cell, and sometimes more than a hundred in a Day; but what is most remarkable, as some affirm, she lays those Eggs which are to produce common Bees in Cells of the common Shape and Size, those that are to become Drones or Males in larger Cells, and in two or three great Cells of a circular Form she deposits those which are to be Females like herself. These Eggs, having lain a short Time in the Cells, are hatch'd into white Maggots, and are fed with Honey for ten or twelve Days, after which the other Bees close up the Cells with a thin Piece of Wax; and under this Covering they become gradually transform'd into Bees, in the same manner as Silk-Worms are into Butterflies. Having undergone this Change, the young Bees pierce through their waxen Doors, wipe off the Humidity from their little Wings, take their Flight into the Fields, rob the Flowers of their Sweets, and are perfectly acquainted with every necessary Circumstance of their future Conduct.—As to the Males or Drones, which are destined only to propagate their Species, they live very comfortably for about three Months after they are hatch'd; but
when

when that Time is over, and the Females are impregnated, the common Bees either kill them or drive them from the Hive as burdensome to the Community, and not a Drone is to be found till the next Season.

THE Method in which the Bees collect their Wax and Honey deserves to be a little explain'd. At the Bottom of all Flowers there are certain Glands which contain more or less Honey, that is, the most exalted Particles of the sugary Juices of the Plant. These Juices the Bee sucks up with its *Proboscis* or Trunk above-mention'd, and draws it into its Mouth; and when it has thus taken a sufficient Quantity into its Stomach, it returns to the Hive, and discharges the Honey into the common Magazine. When the Cells prepared to receive it are full, the Bees close up some with Wax till they have Occasion for the Honey; the rest they leave open, to which all the Members of the Society resort, and take their Repast with a very instructive Moderation. *

* It is an excellent Observation of a modern Author, that the Hive is a School to which Numbers of People ought to be sent: Prudence, Industry, Benevolence, Publick-spiritedness, Oeconomy, Neatness, and Temperance, are all visible among the Bees. These little Animals are actuated by

a social Spirit, which forms them into a Body politick, intimately united, and perfectly happy. They all labour for the general Advantage; they are all submissive to the Laws and Regulations of the Community; having no particular Interest, no Distinction but those which Nature or the Necessities of

NATU-

NATURALISTS have generally supposed, that the fine Dust of the *Apices* of Flowers, collected amongst the Hairs of the Bee, which Nature seems to have cloath'd it with for that Purpose, was afterwards converted into Wax; and some of the Moderns, as well as the Ancients, have imagined Wax to be the Excrement of this laborious Insect: But the judicious *Boerhaave* takes it to be a Juice issuing from the Leaves of Plants, and adhering to their Surface, where it is inspissated by the Heat of the Sun, as may be seen in Rosemary by the Help of a Microscope. This the Bees collect with their fore Feet and Jaws, and roll up into little Balls, which they convey, one at a time, to the Feet of their middle Legs, and from thence to the middle Joint of their hind Legs, where there

their Young have introduced amongst them. We never see them dissatisfied with their Condition, or inclinable to abandon the Hive in Disgust, to find themselves Slaves or Necessitous. On the contrary, they think themselves in perfect Freedom, and perfect Affluence; and such indeed is their real Condition. They are free; because they only depend on the Laws; they are happy, because the Concurrence of their several Labours inevitably produces an Abun-

dance, which contributes to the Riches of each Individual. Let us compare human Societies with this, and they will appear altogether monstrous. Necessity, Reason, and Philosophy, have establish'd them for the commendable Purposes of mutual Aid and Benefits: But a Spirit of Selfishness destroys all; and one Half of Mankind, to load themselves with Superfluities, leave the other destitute of common Necessaries.

is a small Cavity, like a Spoon, to receive the Burden. When those Bees who are employ'd in collecting the Wax return to the Hive, they are assisted by their Companions in discharging their Load, who by little and little pick off the Wax from their Legs, and carry it to the common Treasure. With this they build their Combs, observing a wonderful Frugality, not the least Grain of it being wasted or neglected.

ALMOST every one knows the great and various Uses of Wax and Honey, the Consumption whereof, throughout the several Parts of *Europe*, is incredible; and if Honey were more used than it is, instead of Sugar, it would be found of excellent Service. Being very penetrating and deterging, it is good in all Obstructions, especially from viscid and tough Humours. It wonderfully promotes Expectoration; nor is there any Disorder arising from Phlegm, or the Produce of a cold Constitution, in which it is not serviceable. If eaten over Night upon a Toast, or dissolved in any warm Liquor, it greatly helps those who are troubled with thick Phlegm in a Morning. But it is to be observ'd, that there is a Peculiarity in some Constitutions, which renders them incapable of bearing the least Quantity of Honey, without Gripes, Vomitings, and great Uneasiness. In Surgery it is used to cleanse foul Ulcers, either by immediate Application, or washing them with Liquors in which it has been dissolved.

CONSI-

CONSIDERING therefore the Advantages arising from the Labours of Bees, is it not strange that our Country-People are not more solicitous about the Preservation and Increase of these Animals? It is certain they would multiply prodigiously with proper Management; and we might, upon a moderate Computation, have five thousand times as much Wax and Honey produced in this Kingdom as we have at present. But instead of taking due Care to keep them warm in Winter, and to supply them with a sufficient Quantity of Food, we suffer vast Numbers to perish annually; and still greater Numbers we destroy, with the Loss of an immense future Progeny, by smothering whole Swarms in the Hive, in order to obtain the Honey. Our Neighbours the *French* and *Dutch* have found out a Method to prevent this Destruction; and it is surprising that no more Notice has been taken of what Sir *George Wheler* relates concerning the Management of Bees in *Greece*, which certainly deserves the Consideration of our Farmers, as such a Practice (or something of the like Nature) would evidently tend to their very great Emolument.

THE *Greek* Bee-Hives (that Traveller informs us) are made of Willows or Osiers, and shaped like our common Dust-Baskets, being wider at the Top than at Bottom, and plaister'd with Clay both within and without. Across the Top of the Hive they lay broad flat Sticks, covering them with Clay and Straw to secure them

them from the Weather. To these Sticks the Bees fasten their Combs, so that they may be taken out whole, one by one, with the greatest Ease imaginable. In *March* or *April*, to prevent the Bees from swarming and flying away, they separate with a Knife the Sticks to which the Combs are fasten'd, taking out those on each Side, and placing them in the same Order in another Hive, till they are equally divided. Then having furnish'd each Hive with more Sticks, and cover'd them over as before, they set the new Hive in the Place of the old one, removing that to a neighbouring Stand. This is done in the Middle of the Day, when the greatest Part of the Bees are abroad; who, at their Return home, divide themselves without much Difficulty, some taking to the new and others to the old Habitation. In *August* they take out the Honey after the same Manner, that is, separating the Sticks on each Side, and taking away the Combs, till they have left only such a Quantity in the Middle, as they judge sufficient for the Support of the Bees in Winter; brushing those on the Combs into the Hive again, and covering it afresh with Sticks and Plaster. This is also done in the Day-time, when most of the Bees are absent from the Hive, and are therefore least disturb'd themselves, and give their Plunderers the least Disturbance. By this means the Bees being not destroy'd, as is the Custom in *England* when we take the Honey, increase and multiply prodigi-
 VOL. II. N° XXII. U giously,

giously, and make their Masters ample Amends for the little Honey they leave them to feed upon in the Winter. Besides, our Author is of Opinion, that the Smoke of the Sulphur used to destroy the Bees diminishes the Fragrancy of the Wax, and cannot communicate any good Flavour to the Honey*.

ANTIQUITIES.

THE Remains of Antiquity to be met with in that Part of the *Turkish* Dominions we are now surveying, especially in *Greece* and some of the neighbouring Islands, are almost innumerable, and many of them too insignificant to be mention'd; but we shall endeavour to give a Description of such as have chiefly engaged

* This is the Account Sir George Wheeler gives of the Management of Bees at a *Greek* Monastery on Mount *Hymettus*, which is celebrated for the best Honey in all *Greece*, and from whence a great Quantity is sent to *Constantinople*. The same Author mentions another Monastery call'd *Pendeli*, not far from *Hymettus*, which in his Time was under the Protection of the Sultaneſs Mother, and the Monks were obliged to pay upon that account six thou-

sand Weight of Honey every Year to a new Mosque which she built at *Constantinople*, and to furnish it with as much more at the Price of five Dollars the Quintal. He adds, that these good Fathers have seldom less than five thousand Stocks of Bees, with a great deal of arable Land, Vineyards, Plantations of Olive-Trees, Herds of Cattle, Flocks of Sheep, and all other Conveniencies their Manner of Life requires.

the

the Attention of Travellers, beginning with those of *Constantinople*, the Capital of the *Ottoman* Empire.

THE *Hippodrome*, or Place for Horse-Races, is a famous Square in that City, now call'd *Atmeidan* by the *Turks*, which is almost a Translation of its ancient Name, *At* in their Language signifying a Horse, and *Meidan* a Place*. It is still of the same Dimensions as it was formerly, *viz.* about four hundred and fifty Paces in Length, and a hundred in Breadth; but of all its fine Ornaments there are now only two remaining. The first is an Obelisk of Granite or *Thebaic* Marble, of one single Piece, about fifty Feet high, terminating in a Point, and charged with Hieroglyphicks now unintelligible; a Proof, however, of its being very ancient, and wrought in *Egypt*. It stands on a Pedestal eight or ten Feet high, on which are two Inscriptions, the one in *Greek*, the other in

* According to M. *Tournefort* this Place is put almost to the same Uses it was originally, for on *Fridays*, when the Service at the Mosques is over, the *Turkish* Youth, well dress'd and mounted, assemble together to exercise themselves in Feats of Horsemanship. They divide themselves into two Companies; and, on a Signal given, one

starts from each End, riding full-speed with a long Kind of Dart in his Hand. Each throws his Dart at his Adversary, and the other endeavours to avoid it; in which consists the Excellency of the Performance. Their Horses are very swift, and the Riders manage them with wonderful Dexterity and Address.

Latin, importing that the Emperor *Theodosius* caused it to be set up again, after it had lain upon the Ground a considerable Time; that the Engineer who undertook this Task was nam'd *Proclus*, and that he compleated it in two and thirty Days. Each Side of the Pedestal is likewise adorn'd with curious Bass-Reliefs, one of which on the North represents the Workmen and Machines whereby the Obelisk was rais'd, and also the Obelisk itself, both upright and lying upon the Ground. Another Range of Sculptures below represents the *Hippodrome* as it was formerly, with two Obelisks, two Men on horseback, and several People on foot. On the South Side of the Pedestal are carv'd four Chariots, two of which are drawn by a Pair, and the other by four Horses, with each of them a Driver; and on the same Side are twenty or thirty Figures cloath'd in Gowns, with others in a fighting Posture, arm'd with Bucklers. On the East Side is represented a promiscuous Company of Men and Women, dancing and playing upon musical Instruments of several Kinds; and higher up are two Ranges, whereof little appears but the Heads, which were probably intended for the Spectators. The West Side is adorn'd with Figures in a suppliant Posture making Presents to the Emperor *Theodosius*, who is seated on a Throne with his two Sons *Honorius* and *Arcadius*, and attended by his Nobles.—This Obelisk had formerly on the Top of it a brazen Pine-Apple, which was
thrown

thrown down by an Earthquake, as we are inform'd by *Nicetas* in his Life of *St. Ignatius*, Patriarch of *Constantinople*.

At the opposite End of the *Hippodrome* there is another Obelisk, consisting of several Pieces of white Marble, and raised upon a Pedestal of the same; but when *Sir George Wheler* saw it, in 1675, the Top of it was broken off, and the rest look'd ready to fall. *M. Tournefort*, who was at *Constantinople* in 1700, gives the same Account of this Obelisk, and adds, that it was formerly cover'd with Plates of Brass, which he supposes were adorn'd with Bas-reliefs and other Ornaments, an Inscription on its Base representing it as a very wonderful Work, and made still more beautiful by the Emperor *Constantine*, the Son of *Romanus*.

BETWEEN the two Obelisks we have been describing stood a Pillar of Brass, about fifteen Feet high, representing three Serpents twisted spirally round each other like a Roll of Tobacco, the Wreaths diminishing gradually from the Base to the Top, where the Heads of the Serpents parted different Ways, bending outwards in a triangular Form. In the Year 1700 the Pillar was thrown down, and the Heads broken off and carried away; and some Years afterwards the Pillar itself was remov'd, but what is become of it we are not able to say.—The History of this Column is very uncertain; but there is great Reason to suppose, with *M. Tournefort*, that it was brought originally

from *Delphos*, where it serv'd to support the famous golden Tripod of *Apollo*. Sir *George Wheeler* conjectures that it was anciently placed on the Top of the Obelisk last describ'd.

IN the great Street leading to *Adrianople* stands the *Burnt Column*, as it is now call'd, being so black and scorch'd by the frequent Fires that have happend near it, that one can scarce discover what it is made of: Upon a narrow Inspection, however, it appears to be compos'd of several Pieces of *Porphyry*, the Joints whereof are bound about with Rings of *Brass*. It is rais'd upon a square *Marble Pedestal*, every way four Yards broad, and six Yards high; and towards the Top of it there is a *Greek Inscription*, implying that this admirable Piece of Workmanship, being ruin'd by Time, was erected anew by the Emperor *Manuel Comnenus*, who reign'd in the twelfth Century. This Pillar is supos'd to have been brought from *Rome* by *Constantine* the Great, who caus'd a beautiful brazen Statue of *Apollo* to be placed upon it, and call'd by his own Name; which Statue, according to History, was either struck down by Lightning, or blown off and demolish'd, several Persons being dash'd to pieces by its Fall. In a Word, the Column, though very ancient, has not suffer'd so much by Length of Time, as by Fires, Storms, and Earthquakes.

IN a Part of the City lying South from the *Hippodrome* stands the *Historical Pillar*, so call'd because it is cover'd with *Bass-Reliefs* from Top

to Bottom, representing the Victories of the Emperor *Arcadius*. The conquer'd Towns are denoted by the Figures of Women, whose Heads are crown'd with Towers; and amongst them the Emperor appears sitting in a Kind of Elbow-Chair, with two Angels over his Head supporting the *Labarum* or Standard of the Christian Emperors. The Sculptures are much better than most Performances of the same Date, that is, in the Declension of the *Roman* Empire. The Horses in particular are finely done; and the Artist has taken pains to make the Figures appear of an equal Bigness to the Eye at all the Distances, those near the Top seeming just as large as those at the Bottom. This Column is of plain white Marble, but blacken'd and disfigur'd by Fires as well as the former. It is a hundred and forty-seven Feet high, and has a Pair of winding Stairs within it, but so much broken and decay'd that they are entirely useless.

THERE is another Monument of Antiquity which was scarce taken notice of before Sir *George Wheler*, who discover'd it in a private Court Yard about half way between the *Hippodrome* and *Adrianople* Gate. It is a Pillar erected to the Emperor *Marcian* by *Tatianus*, as appears from an Inscription on the Pedestal, who was undoubtedly the same that assured *Marcian*, when he was only a private Soldier, that he should live to be advanced to the Imperial Throne; and the Event having verified
the

the Prediction, he made *Tatianus* Governor of *Constantinople*. This Column is of Granite, and has an Urn of white Marble on the Top of it, wherein *Marcian's* Heart was probably deposited; and it is supposed a Statue of that Emperor was placed upon the Urn, as the above-mention'd Inscription seems to intimate.

LET us now take a View of the Antiquities of *Athens*, which are still so numerous, notwithstanding the Havock that Time and barbarous Ignorance has made amongst them, that they exceed those of any City in the World, *Rome* only excepted. That which claims our first Attention is an ancient Temple of *Minerva*, now a *Turkish* Mosque, which is all built of white Marble, and is perhaps the most beautiful Piece of Antiquity now in Being. It is about two hundred and eighteen Feet in Length, and ninety-eight in Breadth; and has on every Side an Ascent of five Steps, that seem contrived as a Basis to the Portico, which is supported by channell'd Pillars of the *Doric* Order, running all round the Temple. These Pillars are forty-six in Number, two and forty Feet high, and seventeen Feet and a half in Circumference. The Front and Frize round about the Temple are charged with historical Figures of admirable Workmanship, though many of them are very much defaced. In the Middle of the Front is a large naked Figure, which from its Beard and majestic Countenance is supposed to be *Jupiter*. The Right Arm is broken off,
which

which probably held the Thunder; and near this Figure is another that has lost both its Arms, which perhaps was a *Victory* leading the Horses that draw the triumphal Chariot of *Minerva*. These Horses are carv'd in such an exquisite Manner, that the Sculptor seems to have outdone himself, and to have given Life to the very Stone. *Minerva* appears in her Chariot without Shield or Helmet, and behind her is the Figure of a Woman sitting with her Head broken off, so that it cannot be judged for whom it was intended. In the Corner are two other Figures sitting, which Sir *George Wheler* says he knew, from the Medals and Statues he had seen of them, to be the Emperor *Adrian* and his Empress *Sabina*. On the Left Hand of *Jupiter* are five or six other Figures, which Dr. *Spon* took to be an Assembly of the Gods, to whom *Jupiter* introduces *Minerva*, and owns her for his Daughter.—The back Front of this Temple was adorn'd with Figures representing the Contest between *Neptune* and *Minerva* about naming the City of *Athens*; but they are all fallen down, except Part of a Sea-Horse, which may yet be distinguish'd. The Architrave was also charged with Bass-Reliefs, cut in Squares at several Distances, which represented the Wars of the *Athenians*, particularly their Victory at *Marathon*, and that over the *Gauls* in *Mysia*. Within the Portico we see another Range of Sculptures, which are undoubtedly as ancient as the Temple

ple itself, and of excellent Workmanship, representing Sacrifices, Processions, and other Ceremonies of the Heathen Worship. This, like other Pagan Temples, was almost entirely dark within, having no other Light but what came in at the Doors; but there is now a Window at the East End of it, which was made by the *Greek* Christians when they were in Possession of it, and used it for Divine Service. Towards the Bottom of this Window there are several Stones, which admit through them a yellowish Light, and have been represented as miraculous, and said to shine in the Dark, but are in reality only a Kind of transparent Marble*.—As to the Founders of this beautiful Temple, the Body of it was built by *Pericles*, to which *Attalus* added the magnificent Portico: But the Emperor *Adrian* most probably repair'd it, and adorn'd it with the Figures on each Front; for the Whiteness of the Marble, and that Emperor's Statue among the Figures, plainly shew those Sculptures to be of a later Date than the Temple itself.

* This is the Sort of Marble, as Sir *George Wheler* observes, which *Pliny* calls *Phengites*; and the Temple of *Fortune*, built by *Nero*, was of this Stone, which by its Transparency supplied the Want of Windows, so that the Inside receiv'd Light enough, even when the

Doors were shut. It was anciently found in *Cappadocia*, and Mr. *Hill* receiv'd a Specimen of it from thence some Years ago; but it is far from being peculiar to that Country, very beautiful Pieces of it having been found in *Derbyshire*, as well as in *France* and *Germany*.

NOT

NOT far North from the Temple of *Minerva* stands that of *Eretheus*, which is a Sort of double Building, as *Pausanias* describes it, thro' the lesser Part whereof we enter into the larger. The Roof of the large Building is supported by channell'd *Ionic* Pillars, but the Capitals seem to be a Mixture of the *Doric* and *Ionic* Orders.—On the South Side of *Minerva's* Temple are some ancient Ruins, with some Statues of Women in the Walls, which Dr. *Spon* imagined to be the *Graces*. They are cloathed indeed, contrary to the usual Manner of representing those Deities; but that the *Graces* were not always represented naked, appears from *Pausanias*, who has described their Statues and Temple.

DESCENDING from the *Acropolis* or Castle, in which are the Antiquities already mention'd, we come to the Remains of the Theatre of *Bacchus*, the ancient Seats whereof are ruin'd; but where they were, and their Distance from each other, may still be discern'd. The Front towards the Sea has best escaped the Injuries of Time; for there are three Rows of Arches remaining, one above another; but the semicircular Area below the Seats, and the Scene, (or that Part of the Theatre assign'd for the Actors) are almost fill'd with the Ruins of the rest of the Building. The whole Structure was of white Marble, and anciently adorn'd with the Statues of *Menander*, *Euripides*, *Sophocles*, and *Æschylus*, their most celebrated dramatic Writers.—At a little Distance

stance from the Theatre the Foundations of some Arches are to be seen, supposed to be the Remains of the Portico of *Eumenes*, where the Actors got their Plays by heart, and the Citizens used frequently to walk for the sake of the Air and Conversation*.

IN the Side of the Rock whereon the Castle stands, there is a little Church, or rather Grotto, the Front whereof is adorn'd with three Marble Pilasters of the *Corinthian* Order, sustaining an Architrave of the same, with a sedent Figure on the Top of it without a Head, and several *Greek* Inscriptions, from whence it is supposed to have belong'd to a *Gymnasium*, or to have been a Monument erected in Honour of such as had been Victors in the gymnastic Exercises, which were Wrestling, Running, Throwing the Quoit, and several others, contributing either to the Preservation of Health, the Defence of the Body, or Mirth and Recreation.

To the South-East of the Castle are yet standing seventeen beautiful Columns of the *Corinthian* Order, call'd *Adrian's Pillars*, as being thought to be the Remains of that Emperor's Palace, which was probably the greatest Orna-

* From their disputing as they walk'd under the Portico's of the *Lyceum* at *Athens*, the Disciples of *Aristotle* were call'd *Peripateticks*; and from *Zeno's* teaching under a Portico or Piazza, which the *Greeks* call *Stoa*, his Followers obtain'd the Name of *Stoicks*.

ment of *Athens* when the Structure was entire. They are of admirable white Marble, above fifty Feet high including the Capitals and Bases, and about eighteen in Circumference. It appears, however, from a View of the Place, that there were originally six Rows of them, twenty in each Row, which supported a Portico of surprizing Beauty and Magnificence, inclosed within a Cloister, wherein were divers little Rooms whose Cielings were of Alabaster gilt with Gold, and the Whole adorn'd with fine Statues and Paintings.—*Pausanias* likewise mentions an excellent Library collected by *Adrian*, and a *Gymnasium* bearing his Name, of which there are no Footsteps to be seen; but there are some Remains of an Aqueduct begun by that Emperor and finish'd by *Antoninus Pius*, as appears from an Inscription on an Architrave supported by two *Ionic* Pillars*.

Just without the City stands the Temple of *Theseus*, another noble Monument of Antiquity still remaining entire, which as to its Matter, Form, and Order of Architecture, exactly resembles that of *Minerva*, but its Dimensions

* Aqueducts were not common at *Athens* before the Times of the *Romans*, the Want of them being supplied by Wells, some of which were dug by private Persons, and others at the publick Expence. At present

the Town is well furnish'd with Water, brought by Aqueducts under Ground from the Rivers *Ilissus* and *Eridanus*, and convey'd to many private Houses, as well as to common Fountains.

are not so large. With respect to the Workmanship, it may be deem'd a Master-piece; nor is it easy to be parallel'd, much less exceeded, by any other Structure. Within the Portico, at the West End, there is a Bass-Relief representing the Battle of the *Centaurs*; and at the East End there seems to be a Continuation of that History: There are likewise several Figures of Women, which Mr. *Vernon* takes to be *Piritibous's* Bride, and the other Ladies who attended at the Wedding. On the Outside of the Portico, in the Spaces between the Triglyphs, are represented several Feats of *Theseus*, particularly in Wrestling, where all the Locks and Postures of that Art, in which he excelled, are admirably well express'd. He is also exhibited as encountring Bulls, Bears, and other Monsters: But Time has pretty much injured many of these Figures, the Temple having been built soon after the Battle of *Marathon*, when the *Athenians*, under the Conduct of the brave *Miltiades*, gain'd so signal a Victory over the *Persian* Army, that is, almost five hundred Years before the Birth of our Saviour.

THE Tower of *Andronicus*, or Temple of the Eight Winds, is yet standing at *Athens*, and is worth a Traveller's Observation. It is an octogonal Structure, on each Side of which is a winged Figure representing one of the Winds, with the Name wrote over it in *Greek* Capitals; and underneath these Figures, only separated from them by a Frize, are so many Sun-Dials, accom-

accommodated to the different Sides of the Tower. The Roof of the Building consists of little Planks of Marble, broad at Bottom, but meeting all in a Point at Top, so as to form a Kind of Pyramid of more than thirty Sides; on the Summit whereof there was formerly a brazen *Triton*, with a Switch in his Hand, pointing to the Quarter from whence the Wind came; but this Weather-Cock is long since destroy'd. The Figures are of excellent Workmanship, each expressing the Nature of the Wind it is intended to represent.

In the South-West Part of *Athens* stands a beautiful little Structure, commonly call'd the *Lantern of Demosthenes*, on account of a Tradition that the Orator shut himself up there, in order to pursue his Studies without Interruption, having first cut off one Half of his Beard, the more effectually to restrain himself from appearing in Publick: But the real Design of this Piece of Antiquity will best appear by considering its Form and Ornaments. It is a round Edifice of white Marble, only six Feet in Diameter within, and shaped so much like a Lantern, that it is no Wonder it has obtain'd that Name. The Roof is sustain'd by six fluted Columns of the *Corinthian* Order, nine Feet and a half high; and the Space between the Columns is taken up with Pannels of Marble, of one Stone from the Top to the Bottom. The Frize above these Columns consists of one

circular Stone, and another entire Stone forms the Roof or Cupola, which is carv'd so as to resemble Scales lying one over another, and crown'd with a Sort of Stem like the Socket of a Candlestick, (as Sir *George Wheler* represents it) or rather (as Mr. *Vernon*) like a Plume of Feathers. On the Frize are beautifully represented in Relievo several of the Labours and Exploits of *Hercules*, as is judged from some of the Figures being cloath'd with Lions Skins. There is also an Inscription on the Frize, which gives some Reason to conjecture that this Fabrick was a Temple dedicated to *Hercules* by those who had been Victors in the publick Games. Be this as it will, it appears from the same Inscription to be of great Antiquity, and to have been built above three hundred and thirty Years before the Birth of our Saviour.

SOME Remains of the *Odeum*, or Musick-Theatre, built by *Pericles*, are still to be seen, being the Foundations of a semicircular Structure, about a hundred and forty Paces in Diameter. Within the Area there is a square Elevation five or six Feet high, with Steps to the Top of it; and on each Side are several Seats or Stone-Benches, supposed to have been intended for the Musicians. From these Seats, however, Sir *George Wheler* seems rather to think this was the Place where the Senate or Court of the *Areopagus* used to assemble, which

was

was so famous for its Antiquity and the Justice and Impartiality of its Decrees*.

THERE are several other noble Monuments of Antiquity to be seen at *Athens*, particularly the Remains of a *Stadium* built by *Lycurgus*, and enlarged by *Herodes Atticus*; which was of such a stupendous Bigness, according to *Pausanias*, that it look'd like a Mountain of white Marble. Very little of the Stone-Work is at present remaining, but its Form and Dimensions are yet to be discern'd.—*Adrian's Gate*, and Part of the Temples of *Augustus* and *Jupiter Olympius*, are worth the Attention of the Curious.—To these we might add many Inscriptions, Bas-

* The Time of the Institution of this Tribunal is not known, some referring it to *Solon*, and others carrying it as high as *Cecrops*; nor are Authors agreed as to the Reason of its Name, or the Number of Persons of which it was composed. Its Reputation was certainly very great, not only in *Greece*, but among foreign States, and even among the *Romans* themselves, who often submitted their most difficult Causes to its Decision. This Assembly sat in the open Air, as was anciently the Custom in all Courts of Judicature that

had Cognizance of Murder; partly because it was unlawful for the Accuser and Criminal in such Cases to be under the same Roof; and partly that the Judges, whose Persons were reckon'd sacred, might not be polluted by conversing with such heinous Malefactors. They also heard and determin'd Causes in the Night-time, that they might be the less diverted from their Attention to the Business in hand; and all Pleadings before them were to be simple, without Exordium, Digression, or Peroration.

Reliefs, and Things of the like Nature, which our Design does not require us to set down or describe; but if the Reader has a Taste that Way, we refer him, for a more particular Account of the *Athenian* Antiquities, to Sir *George Wheeler* and other Travellers.

AT *Corinth*, and about the neighbouring *Isthmus*, so famous for the solemn Games there celebrated by the Ancients*, some Remains of Antiquity are yet to be discover'd, but none so entire as those we have been describing. Our Countryman just mention'd takes notice of very few in *Corinth* itself, and the chief of those are only ten or eleven Pillars standing upright, which from their Situation he judged to have supported the Portico of some Temple. They are of the *Doric* Order, fluted, and of a common hard Stone; but their Proportion seems to vary considerably from the Rules of the Ancients, their Circumference being eighteen Feet, and their Height not much above twenty. On the North Side of the Market-place there

* The *Isthmian* Games, in Honour of *Neptune*, were solemnized every fifth Year with incredible Magnificence, and drew together a prodigious Concourse of Spectators from all Parts of *Greece*. The Victors were at first rewarded with Garlands of Pine-Leaves, but afterwards with a Wreath

of Parsley, which was also the Reward of the *Nemean* Conquerors; whereby the Institutors of those Games undoubtedly intended to intimate, that Honour only, not mean and sordid Interest, should be the Motive of great Actions and Undertakings.

is also a Heap of Ruins of Brick-Work, sup-
posed to be either Part of a Temple, or of a
Roman Bath.—At Mount *Oneius* on the *Isthmus*
are to be seen the Ruins of the Town, of the
Isthmian Theatre, and of several stately Tem-
ples and other Edifices mention'd by *Pausanias*;
and in many Places one may discern the Foun-
dations of the Walls built by the *Lacedæmo-
nians* from one Sea to the other, to prevent the
Incurfions of their Enemies. They were re-
pair'd by the *Venetians* when they were in Pos-
session of the *Morea*, but they have been since
destroy'd.

LET us now leave the Continent, and survey
the Antiquities to be met with in the Island of
Delos, which was famed among the Ancients
for being the Birth-place of *Apollo* and *Diana*.
In this Island was a magnificent Temple dedi-
cated to *Apollo*, which is now a vast Heap of
Ruins, lying in such a confused Manner, that
it is impossible to determine so much as the
Form of that Structure. Amongst these Ruins
are the Remains of a Colossal Statue of *Apollo*,
which has lost its Head, Arms, and Feet; and
the rest of it is broken into two Pieces, the
one consisting of the Belly and Thighs, the
other of the Back and Shoulders. The Back
is two Yards broad, and the other Parts pro-
portionably large; so that M. *Tournefort* ima-
gines it was placed on the Frontispiece of the
Temple, and appear'd no bigger than the Life,
from whence one may judge of the Height of
that

that Edifice. This Statue appears to have been an admirable Piece of Sculpture, the Rings of Hair falling down the Shoulders being particularly beautiful. A large Piece of Marble, fifteen Feet and a half long, ten Feet nine Inches broad, and two Feet three Inches thick, is to be seen among the Ruins, which was undoubtedly the Plinth of this gigantic Statue, an Inscription upon it shewing that it was dedicated to *Apollo* by the People of *Naxos*.—Not far from the Statue Sir *George Wheler* found half the Body of a Woman, the Drapery whereof was carv'd so well, that it seem'd to be the Work of no less a Master than the former. Just by this he saw the Body and fore Part of a *Centaur*, on which the Sculptor had so well display'd his Skill, that Life and Vigour appear'd in every Vein and Muscle. The Head and Neck of a Horse, Part of the Figure of a Woman, and several Fragments of Lions, are also found in these noble Ruins, which in general consist of huge Pieces of broken Columns, Architraves, Bases, Capitals, &c. all mingled together in the utmost Disorder and Confusion.

At a small Distance from the Ruins of this Temple lie those of a Portico, which from an Inscription appears to have been erected by *Philip* King of *Macedon*, and consists of Columns and Architraves truly magnificent. These Architraves have escaped breaking and carrying away, being incased into the Tops of the Columns,

lums, which are angular towards the Base, and channell'd upwards, composed of several Pieces, and of the *Corinthian* Order. Each Architrave is one Foot eight Inches deep, ten Feet in Length, and two and a half in Thickness, and the largest Diameter of the Columns is two Feet four Inches.

ABOUT three hundred Paces from this Portico we come to the Remains of a beautiful Marble Theatre, whose Circumference is five hundred Feet, and its Diameter, including the Steps, two hundred and fifty. Just before the Opening of the Theatre there are eight or nine Vaults in a Row, separated from each other by a Wall, in which there is a little Arch, serving for a Passage from one to another. Dr. *Spon* imagined them to have been a Kind of Cisterns or Reservoirs of Water, but it is more likely they were to keep Lions and other wild Beasts in, which used to be baited in the Theatres of the Ancients. These Cellars were not arched over, but cover'd with huge Pieces of Marble cut like Beams, with proper Openings to let in the Light, and to bring the Animals in and out.

NEAR the Foot of Mount *Cynthus*, which runs almost cross the Island, we find the Remains of a Temple, as they are supposed to be, viz. nine Pillars of Marble disposed in a Circle, three standing upright, and six fallen to the Ground. This Temple had a Mosaic Pavement, and underneath these Columns most beautiful

beautiful Vaults have been discover'd.—This Mountain is steep and craggy, consisting of little else but a Kind of greyish Marble; and Sir *George Wheler* imagines, that the Way up the Mountain (which is deep, broad, and winding) was originally a Quarry from whence the Marble was dug, it resembling many Quarries he afterwards saw in *Attica*. On the Top of the Hill are to be seen the Foundations of a Citadel which commanded the whole Island; and all the Way up, on each Side of the Road, it appears to have been formerly adorn'd with Temples, Portico's, or other Structures, as the Foundations of Walls, and a vast Number of Columns, Pedestals, Architraves, and other Fragments of excellent Marble, sufficiently demonstrate.

In another Part of the Island not far from the Sea, there are still standing six or seven Pillars of Granite, which the People of the neighbouring Islands (for *Delos* is not inhabited) call the *School*, from a Tradition that there was anciently a *Gymnasium* in that Place. Between twenty and thirty Columns are lying upon the Ground near those which are standing, most of them nine or ten Feet high, but of different Diameters, and seem to have supported a square Structure; but that it was a *Gymnasium* is not very likely, though probably there was one in the Island.

ABOUT a hundred Paces from this supposed *Gymnasium* we see an oval Bason, being almost
three

three hundred Feet long and two hundred broad, lined round with a Wall as high as its Banks, which is faced with a thick Cement proper to contain Water. This is thought to have been a *Naumachie*, or Place for Naval Exercises; for though we have not the positive Testimony of ancient Authors, that they used to represent Sea-fights at *Delos*, the Bason seems evidently intended for that Purpose*. We must not imagine that large Vessels were used on these Occasions, but such as were suitable to the Dimensions of the Place, and the Depth of the Water.

On a little Eminence near this Bason lie the Ruins of some stately Temple, if we may judge from the Number of Marble Columns, half fluted and half pannel'd, about two and twenty Inches in Diameter; and more especially from the Fragment of an Altar found amongst them, adorn'd with Festoons, Bunches of Grapes, and Heads of Oxen. The upper Part of this Altar is somewhat hollow, proper for the burning of Incense; and by this Cavity we may distinguish Altars from the Pedestals of Statues. These Altars are frequent in *Delos*, and in the adjacent Island of *Rhenia*.†

* *M. Tournefort* informs us, that this Bason is now half fill'd up with Earth, and that the Rain-Water settled in it was briny and almost bitter; which seems to argue that the Cavity was

formerly fill'd with Sea-Water, (as is supposed) the Salt and Slime whereof still remain there in great Quantities.

† In *Rhenia* (which is also call'd the *Greater Delos*).

THE

THE Remains of another noble Structure are to be seen at that End of the Basin which faces the Temple of *Apollo*. A vast Number of Pillars appear to have form'd a Square as broad as the lesser Diameter of the Basin ; and perhaps sustain'd a Portico built by *Dionysius Eutyches*, an Architrave and Altar with that Prince's Name, being found very near these Ruins. Some of the Columns are yet standing, but most of them are fallen down and broken to pieces. There are plain ones of twenty Inches Diameter, and others of eighteen cut in Pannels, both intermix'd with huge Pillars of that Granite, with which Mount *Cynthus* abounds. — From this Portico to the *Little Port of Delos* there is nothing but Fragments of Marble Columns, Altars, &c. which have such an Appearance of Magnificence, that they are probably the Ruins of *Latona's* Temple.

By this Time we imagine the Reader is pretty well tired with viewing the Monuments of Antiquity, and yet we could not forbear enlarging a little on so copious a Subject ; but we shall now shift the Scene, and give him a Prospect less ruinous and melancholy, of some of the noblest Structures in the *European* Part of the *Turkish* Dominions.

M. *Tournefort* says he counted, to his great Surprise, above a hundred and twenty Altars ; most of which were cylindrical, three Feet six

Inches high, and near three Feet in Diameter, adorn'd with Festoons, and the Heads of Rams or Oxen.

BUILD-

BUILDINGS.

THOUGH the *Turks* affect nothing grand in the Structure of their private Houses, yet their Mosques or Temples, and other public Buildings, are extremely magnificent. The Royal Mosques in particular, of which there are seven so call'd, are very beautiful and stately Edifices, and are usually the first that engage the Attention of a Stranger after his Arrival at *Constantinople*. These Buildings appear to much more Advantage than many of our finest Churches, which (in *London* especially) are often so closely surrounded with Houses and Tradesmen's Shops, that there is no Room to view them at a proper Distance; whereas the Mosques of *Constantinople* stand single, within spacious Inclosures, planted with Trees and adorn'd with Fountains. Their Architecture indeed is inferior to that of our Churches, but they make an Impression on the Spectator, and command Admiration by their Largeness and Solidity. The Domes, it must be granted, are well executed in most Parts of *Turkey*, especially those of the Mosques, which are of an exact Proportion, and accompanied with other smaller Cupola's, which set them off to the Eye, and give them a comely and majestic Appearance. The slender Steeples or Pillars call'd *Minarets*, which are somewhat like the Monument in *London*, terminating in small Spires with gilded Cres-

cents on the Top of them, are also a great Ornament to their Mosques as well as to their Cities, many of them being very tall, and Works of surprizing Boldness.

THE principal of the Royal Mosques, and the noblest Structure in the World (according to M. *Tournefort*) next to St. Peter's at Rome, is that of St. *Sophia*, which is advantageously situated on an Eminence in one of the best and finest Parts of *Constantinople*. It was formerly a Christian Church, having been built in the sixth Century by the Emperor *Justinian*; and though the *Turks* have now converted it into a Mosque, it still retains its ancient Name. The Length of this Edifice is a hundred and fourteen Paces, and its Breadth eighty, having in the Front a Portico twelve Yards wide, supported by Marble Columns, which in the Time of the Greek Emperors serv'd for a *Vestibulum*, where such Persons were appointed to stand as were about to receive the Sacraments, or undergo publick Penance. This Portico has a Communication with the Church by nine stately Folding-Doors, the Leaves whereof are Brass, and adorn'd with fine Bass-Reliefs; and on the middlemost some Figures of Mosaic Work are still to be discern'd. Another Portico, parallel to this, has only five brazen Doors without Bass-Reliefs, but formerly charged with Crosses, which the *Turks* have defaced. The greatest Part or Body of the Mosque is cover'd by a Dome of admirable Structure, at the Foot of which runs a Colonnade

Ionnade sustaining a Gallery ten Yards broad, which, when the Christians were Masters of it, was set apart for the Women; and over this are two smaller Galleries, supported by Columns and Arches of excellent Workmanship, answering to those below. The Dome is at least thirty-five Yards in Diameter, and rests upon four huge Pillars about fifteen Yards in Circumference, which, as well as the Dome and the Walls of the Building, are incrustated with white Marble. The Incrustations of the Gallery are Mosaic, mostly done with little Cubes of Glass, which by Time are continually loosen'd from their Cement, but their Colour is fresh and unchangeable. The Form of the Dome is that of a Hemisphere or Half Globe, and it is illuminated by twenty-four Windows placed round it at equal Distances. It was adorn'd by four Cherubims and other Figures, which have been defaced by the *Turks*, who do not admit of any Imagery or Painting in their Mosques. On the East Side of this vast Cupola is a Demi-Dome, which was the Sanctuary or Chancel of the Christians; and here is now a Niche, wherein the *Turks* keep their *Koran*, which may be look'd upon as the *Mahometan* Bible, containing the Revelations, Doctrine, and Predictions of their pretended Prophet. This Niche is in that Part of the Dome which stands towards *Mecca*, and the Niches in all their Mosques are placed in the same Manner, for that Way the *Mahometans* always turn their Faces when they

say their Prayers. At a little Distance from the Niche is the *Mufti's* Chair*, raised on several Steps; and on the Side of it is a Kind of Pulpit, where certain Prayers are repeated by Persons appointed for that Purpose. — It is thought the *Turks* have pull'd down some Parts of this Edifice since they took it from the Christians; instead of which, however, they have added four of those tall slender Minarets before mention'd. Every Royal Mosque has at least two Minarets, and one of them has six; but the ordinary Mosques have seldom more than one. About the Middle of these, on the Outside, there are usually three Balconies or Galleries, one above another; to which the *Muefins* (as the *Turks* call them) ascend by Stairs within, and with a shrill singing Tone give Notice to the People to come to their Devotions.

THE other Royal Mosques of *Constantinople* may be reckon'd so many Copies of *St. Sophia*, more or less resembling the Original; but not one of them comes near it in the Beauty of its Dome, except the *Solymania*, so call'd from its Founder *Solyman* the Second, the most magnificent of all the *Turkish* Emperors. In some

* The *Mufti* is the High-Priest or Patriarch of the *Mabometan* Religion, being the sovereign Interpreter of the *Koran*, and the Oracle of their Law, to whom the last Appeal is generally made in Cases of Importance. He

takes Place of the *Bashaws*, and his Authority has been often terrible to the Grand Signior himself. It is he that girds on the Sword to the Grand Signior's Side, which Ceremony answers to the Coronation of our Kings.

Respects

Respects indeed this Mosque even exceeds that of *St. Sophia*, its Windows being larger and better disposed, its Galleries more regular and stately, and the Whole built of the finest Stones that could be found among the Ruins of *Chalcedon*.—Behind the Mosque, under very beautiful Cupola's, are the Tombs of its Founder and his Sultana. *Solyman's* Tomb is cover'd with a rich Piece of Embroidery brought from *Mecca*, and at the Head of it is placed a Tuft of Feathers beset with precious Stones. This Mausoleum is illuminated with seven large Tapers and a great Number of Lamps kept continually burning.

THE Mosque of Sultan *Achmet*, now call'd the *Atmeidan* Mosque as being near the *Hippodrome*, is so beautiful and magnificent, that it merits a particular Description. It stands in the Middle of a large square Court, about twice as long as broad, on each Side whereof is a Range of low Buildings, cover'd with a great many small Cupola's, which have a very pleasing Effect. From this Court we pass into a square Cloister adjoining to the Western End of the Mosque, having a Piazza supported by ancient Marble Pillars of various Colours, and also cover'd with little Domes. This inner Square is beautifully paved with Marble, and has an hexagonal Fountain in the Middle of it, cover'd likewise with a Cupola of gilded Wire. At the Entrance of the Mosque is a Portico sustain'd by stately Columns of Marble, and

Folding-Doors of Brass admit us into this noble Edifice. The great Dome stands upon four channell'd Pillars of white Marble, which Sir *George Wheler* says are seventy of his Spans in Circumference; and to this are join'd four Half-Cupola's of the same Diameter with the Dome, but much lower. At each Corner there is also a smaller Dome, and six tall Minarets contribute much to the Grandeur and Beauty of the Structure. The Domes are cover'd with Lead, and adorn'd at the Top (as well as the Minarets) with gilded Globes and Crescents, the Symbol of the *Ottoman Empire**.—As to the Ornaments of this Mosque within, they are much the same with those of other Mosques, viz. Balls of Ivory, Globes of Crystal, Lustres, and the like, which make a glittering Show when the Lamps are lighted at their Evening Service.

* The Crescent was the Symbol of the City of *Byzantium*, (now *Constantinople*) which the *Turks* have only adopted. The Device is of great Antiquity, as appears from several Medals, and took its Rise from an Event related by *Stephens* the Geographer, a Native of *Byzantium*. He tells us, that *Philip*, the Father of *Alexander* the Great, meeting with mighty Difficulties in carrying on the Siege of

that City, set Workmen in a very dark Night to undermine the Walls, that his Troops might enter the Place without being perceived, but, luckily for the Besieged, the Moon appearing discover'd the Design, which accordingly miscarried. In Acknowledgment of this Deliverance the *Byzantines* erected a Statue to *Diana*, and thus the Crescent became their Symbol.

THE *Validea*, so call'd from its Foundress *Valide*, the Mother of *Mahomet* the Fourth, is another majestic Edifice, which seems to exceed the other Mosques in the Delicacy of its Architecture. It has a square Court before it, like the inner one of *Achmet*'s, with a Fountain in the Middle of it, and a Piazza running round it, sustain'd by beautiful Columns of Marble, most of them fetch'd from the Ruins of *Troy* or *Alexandria*, particularly two of Jasper which are placed at the Entrance of the Mosque, and are admirably well polish'd and proportioned. The Arches of the Doors and Windows are well design'd, and the Walls and Pillars within are faced with blue and white Tiles, like those used in our Chimneys. This Mosque has two Minarets, and each of these is encompass'd with three handsome Galleries, which are finely illuminated on Occasions of publick Rejoicing.

IT is needless to describe the rest of the Royal Mosques, which are built much after the same Model as those already mention'd; and the Ornaments of all the Mosques are of the same Kind, only differing in Number, Costliness, and Beauty.—The Mosque of Sultan *Selim* at *Adrianople* is a very magnificent Fabrick, much resembling that of Sultan *Achmet* above described, except that the latter has six Minarets, and the former only four. Dr. *Careri* tells us, that going in at the Door of one of these Minarets to examine its Structure, he found

found three winding Stair-Cases, each leading to a different Gallery on the Outside, being so contrived that three Persons may go up the Minaret at once, without meeting or interrupting one another.

AT *Salonichi*, the Capital of *Macedonia*, there are no less than forty or fifty Mosques, some of which are very stately Structures, particularly that which was formerly a Christian Church dedicated to *St. Demetrius*. This Church according to *Paul Lucas*, is supported by noble Columns of Marble, Jasper, and Porphyry; and underneath it he says there is another Church equally beautiful, but he was not allowed to see it, because Women were employ'd there in working of Silk. The Pavement of the upper Church is of *Mosaic Work*, and in this and the lower Building they reckon upwards of a thousand Columns. *F. Coronelli* says it has three Naves, supported by abundance of magnificent Pillars.

WHAT has been said will give the Reader a sufficient Idea of the *Turkish Mosques*, and therefore we need not mention any more, but proceed to a Description of the *Seraglio*, or Palace of the Grand Signior at *Constantinople*. This Palace and its Gardens form a Sort of Triangle about three Miles in Compass, two Sides whereof are wash'd by the Sea, and the third is separated from the City by a high Wall. The Palace stands upon an Eminence, and the Gardens lie below it towards the Sea, which are fill'd
with

with Groves of Ever-greens, not only for the sake of their lasting Beauty, but that the Ladies of the Seraglio, when they are walking, may not be seen by the neighbouring Inhabitants. *Mahomet* the Second was the Founder of this Palace, which may now be look'd upon rather as a Collection of Palaces and Apartments added one to another, according to the Taste and Humour of the succeeding Emperors. The Materials of which it is composed are rich, but the Architecture is not answerable; for the *Turks* (as *M. Tournefort* observes) have no just Notion of Magnificence, and if they have built fine Mosques, it is chiefly owing to the Model of *St. Sophia* which they had before them.— The principal Entrance into the Seraglio is a huge Pavilion call'd *Capi*, the Gate, or Port; from whence some imagine the Name of *Porte* has been applied to *Constantinople*, but rather perhaps, by way of Eminence, from its admirable Port or Harbour. This Gate is very lofty, having a semicircular Arch, and beneath the Bend of it there is an *Arabic* Inscription, expressing that it was erected by the above-mention'd *Mahomet*. Here is a Guard of fifty Men, who have seldom any other Weapon than a white Wand or Staff, and let you pass quietly into a large Court-yard, not near so broad as long; on the Right whereof are Infirmarys for the Sick, and on the Left are Lodges for the Servants employ'd in the meanest Offices of the Seraglio. In this Court there is likewise an old

old Building with a Dome over it, supposed to have been formerly a Christian Temple, or Part of *St. Sophia*; but the Distance makes the last Conjecture improbable. — Through another large Gate we enter a second Court, where there is also a Guard of fifty Porters, without Arms as well as the former. This is a very handsome Square, with several Fountains in the midst of Grass-Plots, which are surrounded with Trees, and the Walks are paved with Marble. Round the Court runs a low Piazza, cover'd with little Cupola's, supported by a great Number of Marble Columns; underneath which the *Janizaries* range themselves when foreign Ambassadors are admitted to Audience, and on other solemn Occasions. On the Right Hand are several Kitchens, which are handsome Buildings with Cupola's over them, that have Holes made in them to let out the Smoke. One of the Kitchens is for the Grand Signior, another for the favourite Sultana, a third for the Ladies of the Seraglio, and the rest are for the Commandant of the Gates, the Ministers of the *Divan*, the Grand Signior's Pages, the Officers of the Palace, the Women Servants, &c. who all together make up a very numerous Family.*

* Numerous indeed they must be, if the Accounts be true which Travellers give us of the Provisions they consume. *Motraye* tells us, he was assured by some of the Cooks belonging to the Seraglio, that they spent yearly no less than thirty thousand Oxen, twenty thousand Calves, sixty thousand Sheep, sixteen thousand

OR

On the Left Hand is the Grand Signior's Treasury, and a Stable for his Saddle-Horses; over which are kept his Bridles, Saddles, Housings, &c. which are extremely splendid, being enrich'd with Jewels and Embroidery. At the farther End of this Court is the Hall of the *Divan*, which is a large but not lofty Building, wherein Councils of State are held, and the Grand Visier (assisted by his Counsellors) determines all Causes civil and criminal, without Appeal. Beyond this Hall no Strangers are admitted except Ambassadors, who pass on to the Hall of Audience, where the Sultan receives them on a Throne almost cover'd with Pearls and precious Stones. The Furniture is answerable to the Magnificence of the Hall, the Cieling and Sides whereof shine with Gold and Azure, and are adorn'd with Paintings after the *Persian* Manner.

We shall not attempt to describe the interior Parts of the Seraglio, into which it is impossible for a Stranger to gain Admittance, without

Lambs, ten thousand Kids, a hundred thousand Geese and Turkeys, the same Number of Pigeons, and two hundred thousand Fowls, besides vast Quantities of Fish, especially Turbots, of which Sort only they used a hundred and thirty thousand. *Tournfort's* Account is somewhat differ-

rent, who says they do not provide much Wild-Fowl, but besides Forty thousand Oxen annually consumed, the Purveyors are to furnish daily two hundred Sheep, a hundred Lambs or Goats, ten Calves, six hundred Hens and Poulets, two hundred Pigeons, and fifty Geese.

running

running the Risque of paying dear for his Curiosity. Some Travellers indeed relate, that they have found Opportunities of seeing the most private Apartments of this Palace, and tell us a thousand amusing Stories which favour more of Romance than Truth, and can never gain Credit but amongst the inconsiderate and injudicious Part of their Readers. But we think it is better to be silent about Matters of such Uncertainty, as it cannot be expected we should give an Account of those forbidden Recesses where the Ladies of the Seraglio are reserv'd for the Entertainment of the Sultan, and into which none are admitted but himself, or the black Eunuchs who have the Care of those Beauties. We have only to observe farther of this famous Palace, that, notwithstanding it is only a vast Cluster of Buildings, join'd together without any Manner of Order, yet it has something pleasing in its Irregularity, and, take it all together, is answerable to the Greatness of its Master.

HAVING thus taken a View of what is most remarkable in the *European* Part of the *Turkish* Empire, we now proceed to their *Asiatic* Dominions.

PART II.

Of A S I A.

CHAP. I.

Of TURKEY in ASIA.

WE are now entring into a Part of the World in many Respects the most considerable of the Four, though a natural Fondness for our own Country is apt to incline us to give the Preference to *Europe*. It was in *Asia* that the Supreme Creator planted the delicious Garden of *Eden*, in which he placed the first Parents of Mankind; and *Asia* became again the Nursery of the World when it had been destroy'd by the Flood, the Descendants of *Noah* dispersing from thence their various Colonies into all the other Parts of the Globe. It was in *Asia* that God chose to fix his favourite Nation the *Hebrews*; in the same Country our Blessed Saviour accomplish'd the great Work of our Redemption, and from thence the Light of his glorious Gospel was spread into all Na-

tions by his Disciples and Followers. In *Asia* the first Cities were built, and the first Monarchies were founded, even whilst the rest of the World was destitute of Inhabitants.

To these Advantages may be added the Fertility of the Soil of *Asia* in general, the Serenity of its Air, the Deliciousness of its Fruits, the Salubriousness of its Drugs, the Fragrancy and balsamick Quality of its Plants, Gums, Spices, &c. the Variety, Beauty, and Value of its Gems, the Fineness of its Silks, the Richness of its Metals, and many more of the like Nature; on which Account it has always been look'd upon as a charming Part of the World, though in some Respects it has had a Rival since the Discovery of *America*. It must be own'd indeed, that since the *Turks* have been in Possession of a very considerable Part of *Asia*, it has quite lost its ancient Splendor, and Countries naturally rich and fertile are almost reduced to a wild uncultivated Desert: But notwithstanding all the Indolence and Tyranny of the *Turks*, their *Asiatic* Dominions afford a great many valuable Commodities, for which they are resorted to by Merchants of other Nations. These Countries likewise afford the Antiquarian abundant Matter of Amusement, being overspread (as we may say) with the Ruins of great and opulent Cities, celebrated both in Sacred and Profane History, the chief whereof will be described hereafter; but we shall first consider a
few

few Articles belonging to the Mineral or Fossil Kingdom.

FOSSILS.

A Very remarkable Curiosity of this Class is the *Soap Earth*, which Dr. *Smith* informs us is found only in two Places near *Duraclea*, a Village about six Leagues to the Eastward of *Smyrna*. It is a whitish Earth, and in effect a fine Soap, boiling or shooting up out of the Ground, and is always gather'd before Sun-rise, in Mornings when there falls no Dew. In some Places it comes up an Inch or two above the Surface of the Ground, but when the Sun shines upon it, it sinks down again. Every Morning there is a new Crop, though all was gather'd that appear'd the Day before. The Soil that produces it lies low, and is marshy in the Winter; so that a Stock for the whole Year must be laid up in the Summer-Months. At the Soap-Houses they mix three Fourths of this Earth with one of Lime, and dissolve the Composition in boiling Water; and stirring it often with a Stick, there floats at top a thick brownish Matter, which they scum off and preserve in Basons by itself, being much richer than the Liquor underneath, though both are used in making the Soap. They then put a proper Quantity of Oil into a large Copper, with a strong Fire under it, and when the Oil boils they throw into it alternately some of the Scum,

and some of the Liquor from whence the Scum was taken; and this they repeat for thirteen or fourteen Days together, in which Time the Soap is usually perfected, when it is taken out of the Boiler, and laid upon a Lime-Floor to dry and harden. An ordinary Soap-House (says our Author) produces a thousand Dollars a Year clear Profit, one Year with another.

THE *Samian* Earth is a white soft Marle, found no where in the World that we know of but in the Island of *Samos*, and which was much esteem'd by the Ancients, who prepared it by burning and washing, and then used it with great Success internally in Fluxes of all Kinds, and externally in Inflammations. They also made a Sort of fine Vessels of it (probably with some other Mixture) which they used in their Feasts and Sacrifices; and it was esteem'd very good for cleaning of Armour. This Marle does not lie in a regular Stratum among other Earths, but is found in the perpendicular Fissures and horizontal Spaces between the Strata of a hard greyish Stone. It has an astringent Taste, and its Virtues are much the same with those of the *Lemnian* Earth.

FROM *Sinope*, a City of *Anatolia* on the *Black-Sea*, there is a very fine Sort of Earth or Ochre takes its Name, being the *Rubrica Sinopica* of the Ancients, so call'd because it was carried to that City for Sale, though dug up in *Cappadocia*. It is a close, compact, and weighty Earth, of a glowing purple Colour, but in some
Specimens

Specimens much deeper than in others, and in some degenerating into Paleness. It is of a pure Texture, but not very hard, though it does not easily crumble or break between the Fingers. It has an austere astringent Taste, adheres firmly to the Tongue, melts slowly in the Mouth, and leaves not the least Grittiness between the Teeth. This Earth, like the *Samian*, is found in the perpendicular Fissures of Stone, and among Iron-Ores, sometimes lying at great Depths, and sometimes at the very Surface. Its fine Texture and high florid Colour makes it worthy the Attention of the Painters, and its great Astringency renders it valuable in Medicine. The Ancients were well acquainted with it as an Astringent, in Fluxes and Hæmorrhages of all Kinds; and Mr. *Hill* says he can warrant from Experience its still possessing the same Virtues, and that in a very eminent Degree.

BUT of all the Earths used in Medicine, none seems to have been more deservedly esteem'd than what we call *Bole Armenic* or *Armenian Bole*, being anciently, as well as at present, found in *Armenia*. The true *Bole Armenic* of *Galen*, which that excellent Physician first introduced into Medicine, and used with Success in the Time of a terrible Plague at *Rome*, was of the yellow Kind, and is confessedly a most valuable Astringent, and also commended as an Alexipharmic and Sudorific. This Sort is perhaps the best Medicine of all the Earths, and, though seldom known or look'd for amongst

us, might easily be procured, great Quantities of it being annually dug out of a Pit in the Mountains to the North-East of *Erzerum*. There is also a white Sort, which is scarcer, and unknown in our Shops, the reddish Kind now passing among us for the true *Bole Armenic*; and a good Medicine it is, if we had it genuine, but instead of that we are imposed upon by a Composition of Tobacco-Pipe-Clay and an Ochre known by the Painters under the Name of *Spanish Brown*. This red Sort is found abundantly in the North-East Parts of *Armenia*, sometimes in Strata seven or eight Foot thick, never lying very deep, and often appearing on the Surface. It is a pure and valuable Earth, of a compact Texture, and indeed the hardest of all the Boles, being not easily broken, and staining the Fingers a little in handling. It does not soon dissolve in Water, but melts readily enough in the Mouth, and leaves not the least Grittiness.—As to its Virtues, it is a good Astringent, and has ever been accounted serviceable in the Plague, malignant Fevers, Dysenteries, Spitting of Blood, and Hæmorrhages of all Kinds; but, as we have intimated before, it is seldom or never to be found genuine in our Shops.

NOTWITHSTANDING we have heretofore given some Account of the Agate*, we think it necessary to say something here of a very e-

* See Vol. I. p. 196.

legant and beautiful Species of it, call'd by our Lapidaries the *Mocoa-Stone*, as being carried for the Convenience of Sale to *Mocoa* or *Mocha* in *Arabia*, though produced in the *East-Indies*. This Stone is of a compact and fine Texture, of an irregular Surface, uncertain in Shape and Size, but most frequently of the Figure of the ordinary flinty Pebbles, and from one to eight Inches in Diameter. The Veins of it are prettily disposed in a Number of various Figures, but generally in the Form of many concentric Circles drawn round one or more different Points in different Places. In divers Parts of the Stone it is common to find beautiful Delineations of Trees, Mosses, Sea-Plants, and such-like Figures, so elegantly expressed, that many have believed real Mosses and Sea-Plants included in its Substance. This, however, is an absolute Mistake; the true History of those Figures (according to Mr. *Hill*) being no more than this, that the Stone is subject, like our common Flints, to imperceptible Cracks or Flaws, into which the Steams or Effluvia from Minerals and other fossil Bodies, continually pervading the whole Structure of the Earth, find their Way, and perhaps sometimes Water itself may get within them. Now we are sensible, that either Water or these Vapours may be capable of leaving a black Tinge on the Surface of Bodies they have long remain'd on; and these finding a Passage into the natural Cracks and small Crevices of the Stone, have from

from the Sides of these insinuated themselves farther and farther into the Mass, and run into branched Figures; or the Water, where originally included in ever so small a Quantity, has, as the Stone contracted more firmly, spread and diffused itself into the various detach'd Figures we are speaking of; for all the Delineations in these Stones may be referr'd either to these detach'd Figures, or cloudy Spots, or to those which evidently arise from the Sides of a long Crack or Fissure. That Steams or mineral Effluvia pervade almost all fossil Bodies, is proved from numerous Instances; but what makes most for the present Purpose is, that we find them wherever there have been Cracks, in many of the harder Kinds of the *Septariæ*, frequently affording what Naturalists call *Dendritæ*, or fuliginous Delineations of Trees, &c. which far excel those of Agates, and would be inestimable, were they in as valuable a Substance. The very Surfaces of the *Septariæ* are often over-spread with them, and even so poor and low a Substance as Chalk is not without these Delineations, and those more beautiful than what we admire in Agates. But that they are not real Remains of Vegetables every one must needs be convinced, who observes the Multitude of Figures not in the Vegetable World, nor indeed in Nature, otherwise than in these elegant Diffusions of a subtil Matter by which they are formed, just like the branched Figures between two levigating Stones at the Colour-Shops,

Shops, the Ramifications of Salts in chymical Vessels, and the elegant Figures of Plants, &c. in the Hoar-Frost on Windows.—We have something from *Germany* that imperfectly resembles the *Mocha Stone*, but it is only a baser Agate with various Delineations, which may happen, as we have shewn, to any Stone, and are common, in some Degree, even to our *English* Pebbles.

SEVERAL Kinds of *Onyx* are found in *Arabia*, particularly a very elegant Species with whitish and yellow Zones, properly the yellow Sardonyx. The Orange-Sardonyx, or bluish-white *Onyx*, with orange-colour'd and whitish Zones, is also to be met with in that Country as well as others. But perhaps the most singular Species of this Gem is what the Moderns call *Camea*, the *Arabian Onyx* of the Antients, which in the Hand of the Sculptor is often seen to make a beautiful Figure. It is moderately compact and firm, of a smooth and equal Surface, generally of a roundish Form, but sometimes broad and flat, in which last Form it is the least valuable, the Pieces being smaller than the round ones, and subject to transverse or perpendicular Flaws and Fissures, which often divide a Stone into Bits not worth the working. The Zones of this Species are very hard and thick, of no Colours but black and white, and those ranged in a regular alternate Order, but not very regular in their Breadth. In some Masses indeed they are
nearly

nearly equal, but in others the black Zones are sometimes very broad, and the white ones very narrow, and *vice versâ*; and this now and then in different Parts of the same Mass. The crystalline *Nucleus* or Basis in this Species is the only Part that is of any Degree of Purity, the Zones being so dull and opaque that the Stone may easily be mistaken for Marble; but as it is considerably hard, and capable of a fine Polish, it has always been esteemed by the Jewellers and Lapidaries, for the cutting of Heads or other Figures.

THE *Opal*, a Gem of a very peculiar Kind, and much valued in all Ages, is likewise found in *Arabia*, and that in greater Perfection than in *Europe*. It is softer than any other of the fine Gems, and not easily polish'd; but being naturally of a smooth Surface and tolerable Gloss, some of the best Opals are worn with their native Polish only. It is found of various Sizes, but most frequently between that of a Pea and a Horse-bean; though sometimes it is met with as small as the Head of a Pin, and sometimes as large as a Walnut. Its Shape is likewise uncertain, some being irregularly oblong, others perfectly round, and others in the Form of a Kidney. Its Colour is of so mix'd a Nature, that it is not easy to be described, being something like the finest Sort of Mother of Pearl, but far exceeding that in Lustre and Transparency. As it is variously turn'd about, it shews the Colours of almost all the other
Gems,

Gems, having the Yellow of the Topaz, the Blue of the Sapphire, the Green of the Emerald, the Red of the Ruby, and the Fire-Colour of the Carbuncle when held against the Sun. All these Colours (besides a white milky Cast) are of a fine Brightness and Lustre, but are only the Effect of different Reflections of Light falling on it in different Angles, and not permanent and unalterable in the Stone, like the single Colours of other Gems; for the small Fragments of Opal do not shew them, but are of a pale blueish or pearly Grey; which is properly its genuine Colour. Some Opals want one or more of the above-mention'd Colours, and are liable to be tinged with a deep blueish Black; in which last Case the Gem shews no Colour but its Red in any Light or Position, but then the Red appears more than usually glowing and fiery, and seems lodg'd very deep in the Stone; so that in this State, which is but an imperfect one, it has an Excellency beyond even its finest Specimens. The Opal, of all the Gems, is the most difficult to be exactly counterfeited*; and the best Thing for that Pur-

* Mr. Colepress, in the *Philosophical Transactions*, tells us of a counterfeit Sort of Opal made at *Haerlem* in *Holland*, which he says is very lively, and supposes the several Colours to be produced by different Degrees

of Heat. When the Composition is thoroughly melted, some of it is taken out on the Point of an Iron-Rod, which being cool'd, either in the Air or Water, is colourless and pellucid; but being put again into the

pose

pose (according to Mr. Hill) is a well-chosen Piece of a pearly shell.

THE *Asiatic* Dominions of the *Turks* (wherein we include the Whole of *Arabia*, though Part of it is subject to independent Princes) afford abundance of Copper and other Metals, which we have spoken of sufficiently in *Europe*, and therefore require no farther Notice in this Place: And of the various Kinds of Marble which these Countries produce, we need only describe two or three of the most remarkable. A Snow-white lucid Alabaster, which Mr. Hill takes to be the *Lygdine* Marble of the Ancients, is found in immense Strata in *Arabia*, though not peculiar to that Country. This is a most beautiful and elegant Stone, of a Whiteness far surpassing the famous *Parian* Marble, or that of *Carrara* in *Italy*, and indeed the most splendid of all the Marble-Class. It is always found perfectly pure, is moderately hard in the Mass, but somewhat crumbly in small Pieces, cuts very freely, and is capable of a beautiful Polish. This Stone, which is seldom brought to *England*, though Plenty of it

Mouth of the Furnace upon the same Rod, and there turn'd round for a little time, its Particles acquire such various Positions, that the Light falling on them, being variously modified, represents the several Colours

seen in the natural Opal. He add, that these Colours may be destroy'd and restored again by different Degrees of Heat, putting the Particles into different Motions.

might

might be had, is what our more judicious Workmen properly term *White Alabaster*; for that Name is given indiscriminately to the white Marbles in general. Mr. *Hill* recommends this elegant Marble to the Statuaries, for the making of it, as the Ancients did, Vases and such-like ornamental Furniture, which were never more esteem'd than in the present Age.

THERE are also vast Strata of a fine Species of Porphyry found in *Arabia Petraea*, as well as in the *Upper Egypt*. This is a roughish Sort of Marble, of a very compact and firm Texture, considerably heavy, and of a pale Flesh-Colour, variegated with Black, Green, and White in large Blotches, from half an Inch to an Inch broad, and sometimes (though very seldom) disposed in irregular Veins. It breaks with a tolerably even Surface, and appears very lucid in all its Parts, but rather glossy than glittering. It is extremely hard, takes a fine Polish, and is so transparent, especially in the green Parts, that one may see deep into its Substance. The red, white, and green Parts of this elegant Marble appear tabulated, resembling greatly the foliaceous Talc, but with an additional Brightness; and the black are the same in all Respects, only debased by a large Mixture of Earth, which makes them evidently softer than the rest of the Stone. The white and flesh-colour'd Parts are slightly debased by an Earth of those Colours; but the green, which have usually a fine metalline Tinge, like

that of the Gems, are the brightest of all, and almost perfectly transparent.—Separate Nodules of this Porphyry are frequently found in *Germany* and *Ireland*, and in some Parts of *England*.

WE shall only add, that *Arabia* likewise affords Plenty of a red Granite, variegated with White and Black, which, for its extreme Hardness and Beauty, has always been in the highest Esteem. This is the *Syenites* of *Pliny*, and the *Oriental Granite* of the Moderns; but very fine Pieces of it may be found without going any farther than the West of *England*. It is of a very firm and compact Texture, naturally breaking with a rough Surface, considerably bright and glittering in all its Parts, and capable of a most elegant high Polish.—From the Mineral let us now proceed to the Vegetable Kingdom.

VEGETABLES.

AS we are now in *Arabia*, it seems natural to begin this Article with the Productions of that Country, and in the first Place to describe the *Coffee-Tree*, whose Seeds or Berries afford us such an agreeable Liquor. This Tree, or rather Shrub, which grows plentifully in *Arabia Felix*, generally rises to the Height of seven or eight Feet, and sometimes to twelve, having a Trunk from ten to fifteen Inches in Circumference. It is cover'd with a grey smooth Bark,
and

and shoots out, through the whole Length of its Stem, a Growth of Branches which are always opposite to each other. The Leaves, which somewhat resemble those of the Bay Tree, are ranged in Pairs in the same Manner; and from the Bottom of these spring fragrant white Flowers, very much like those of the Jessamine, of which some reckon the Coffee-Shrub a Species. When the Flowers fall, they leave a small Fruit behind, which is green at first, but reddens as it ripens, and is like a hard Cherry both in Shape and Colour. Two, three, or more of these Berries grow together on the same Part of the Twig, each coated with a Husk or Tegument inclosing another finer Skin, in which two Seeds or Kernels are contain'd, which are what we call *Coffee*. The Fruit is usually gather'd in *May*, which is done by shaking the Trees, the Berries falling on Cloths spread underneath to receive them. These being laid on Mats to dry in the Sun, the outer Husks are open'd and separated by drawing Rollers of Wood or Iron over them; after which the Berries are exposed to the Sun a second time, and then sifted clean for Use or Sale. The Husks, however, are not wasted; for the *Arabs* roast them as we do the Berries, and the Drink made of them, having a little Tartness, is very cooling and pleasant in the Heat of Summer.—The Coffee Trees are propagated by the Seed when perfectly ripe, and are disposed of in Nurseries to be transplanted as there is Occasion. They

require a rich Mould, and thrive best about the Bottom of Mountains and little Hills which are moist and shady. In Times of Drought they are water'd by artificial Canals cut from Rivers or Springs, and in conducting little Streams of Water about their Roots consists the chief Part of their Cultivation. It was formerly imagined that the *Arabians* steep'd their Coffee-Berries in boiling Water, or used some other Means before their Exportation, to make them unfit for Growth, that they might not be deprived of the Profits of the Plant, by its Propagation in other Countries: But this Mistake was owing to the Difficulty of raising the Shrub from Seed, unless sown immediately after it is gather'd. Of late Years, however, the Plant has been cultivated with Success at *Fort St. George*, the *Cape of Good Hope*, *Batavia*, and other Places; and we are told that the Island of *Jamaica* now produces it almost in as great Perfection as *Arabia*. In our own Country, as well as in other Parts of *Europe*, it may be seen in the Gardens of the Curious.

It is well known that the Preparation of Coffee-Berries consists in roasting them, or giving them a just Degree of Torrefaction, which is judg'd by their acquiring a brownish Hue equally deep on all Sides; and for this Purpose an earthen Vessel is reckon'd preferable to one of Iron or any other Metal. A proper Quantity being ground in a Mill, and the Powder infused in boiling Water, makes a Drink now
much

much in Use amongst us*, and of a most agreeable Flavour when its Bitterness is taken off with Sugar.—As to the Virtues of Coffee, it is universally allow'd to be an excellent Drier, carrying off Fumes and Disorders of the Head arising from too much Moisture, and absorbing Acrimonies of the Stomach, whence it is of Service after a Debauch of strong Liquors; and it promotes Watching by bracing the Fibres, and rendring them too tense for the Relaxation required in Sleep. It is esteem'd efficacious for the Cure and Prevention of comatous Disorders, proceeding from Phlegm or a too viscid Blood;

* The Drink made of Coffee-Berries has been common in *Europe* for above fourscore Years, and much longer among the *Turks*, though its Origin is not well known. Some ascribe it to the Prior of an *Arabian* Monastery, who being inform'd that the Goats sometimes browsing on the Tree would keep awake and caper all Night long, became curious to prove its Virtue, and gave Coffee to the Monks to prevent their being drowsy at their nocturnal Devotions. Others refer the Invention of Coffee to the *Persians*, from whom it was introduced at *Aden* in

Arabia by the *Dervises* of that City, a Sort of *Mahometan* Monks, who drank it when they spent the Night in Prayer. Their Example brought Coffee into Vogue at *Aden*, from whence it pass'd to *Mecca*, where it was first taken by the Devotees, and then by the rest of the People. From *Arabia* the Custom made its Way to *Cairo* in *Egypt*, and from thence to *Syria* and *Constantinople*. Some *Turkish* Doctors, indeed, oppos'd the Introduction of this Liquor, declaring it to be spirituous, and almost as inebriating as Wine itself, which the *Laws* forbids them to drink;

and in general it is more proper for corpulent and phlegmatic Persons, than for those of thin, lean, and bilious Constitutions, as it dries up the Nerves and inclines them to Tremors. By its volatile Salts it removes Obstructions of the Brain, dries up its superfluous Moisture, and consequently restores a due Degree of Elasticity to its Membranes and Vessels. It infallibly cures that Species of Head-ach which arises some Hours after Dinner from a bad Digestion, and is of Service in those proceeding from other Causes. When made very strong, it is esteem'd by some an excellent Remedy for a nervous Asthma; and is said to attenuate the Blood, and promote Urine. *S. Pauli, a Danish Phy-*

but the *Mufti* soon removed this Difficulty, and Coffee was vindicated from the Imputation of any vinous Quality, and allow'd to be a lawful Liquor. During the War in *Candia*, the Assemblies of News-mongers making too free with State-Affairs, the Grand Vizier suppress'd the Coffee-houses at *Constantinople*; which Suppression, though still subsisting, does not prevent the publick Use of Coffee in that City. The Custom of drinking this Liquor prevails very much amongst the *Turks* in general, who sel-

dom sweeten it with Sugar; but their *Grandees* add to each Dish a Drop of Essence of Amber, others boil it with two or three Cloves, and others with a little *Indian Anise*.—Coffee was first brought into *France* by the famous Traveller *M. Thevenot*; and a *Greek* call'd *Pasqua*, brought to *England* as a Servant in 1652 by *Mr. Edwards*, a *Turky Merchant*, first set up the Profession of Coffee-Man, and introduced the Liquor amongst us, tho' some say *Dr. Harvey* had used it before.

sician,

fician, is of Opinion that enervates Men, and renders them incapable of Generation; and in the Year 1695, it was defended in the Schools of *Paris* as a Thesis, that the daily Use of Coffee render'd both Men and Women unfit for Procreation: But nobody will affirm this, who considers that as numerous a Progeny is brought into the World since the great Use of Coffee in *Europe*, as before. However, it is certainly prejudicial if drank too frequently, or in too large Quantities, without considering what the Constitution will bear or requires.

THAT odoriferous Gum or Resin we call *Frankincense*, or simply *Incense*, anciently burnt in Temples as a Perfume*, distils spontaneously from the Tree which produces it, during the Heats of Summer: But for all the great Use of this Gum, both in the ancient Religion and the modern Medicine, the Tree that yields it, and even the Place where it grows, is but little known. The most common Opinion has always been, that it was the Product of *Arabia Felix*, and found near the City of *Sabe*, whence its

* People of all Religions formerly burnt Incense in their Temples, to do Honour to the Divinities that were there adored. Many of the primitive Christians were put to Death, because they would not offer Incense to Idols. — In the *Romish*

Church they still retain the Use of Incense in many of their Ceremonies, particularly at solemn Funerals, bestowing it on Persons they would honour, as Prelates, &c. and sometimes also on the People.

Epithet

Epithet *Sabaum*; and yet the Name *Olibanum*, which it also bears, seems to intimate, that there are of these thuriferous or Incense-bearing Trees near Mount *Libanus* in *Syria*; nor is it to be question'd but there are others in the *Indies*. We are likewise at a Loss as to the Form of the Tree producing Incense, as Mr. Ray himself confesses. *Theophrastus* says it is about five Cubits high, full of Branches, with Leaves resembling those of the Pear-Tree, and a smooth Bark like that of the Bay-Tree; but (adds he) others affirm it to be like the Mastick-Tree, bearing similar Fruit, and a reddish-colour'd Leaf; and others assert, that both its Leaves and Bark resemble those of the Bay-Tree.—Frankincense is brought to us from *Turky* and the *East-Indies*, form'd into small Drops, of a pale yellow Colour, somewhat hard and pellucid, of a bitterish resinous Taste and fragrant Smell. Sometimes we have it in a Mass, but that in Drops is preferable. It is heating, drying, and sub-astringent; and is chiefly used internally, not only for various Disorders of the Head and Breast, but against Coughs, Vomiting, Spitting of Blood, Diarrhoeas, and Dysenteries. Externally applied it heals Wounds, cures Chilblains, mitigates malignant Ulcers, removes Redness and Inflammation of the Eyes; and some use it to assuage the Tooth-ach, but it is apt to spoil the sound Teeth. Fumigations of it are used to strengthen the Brain.

Myrrh

Myrrh is another Kind of Gum or Resin, issuing by Incision, and sometimes spontaneously, from the Trunk and Branches of a Tree growing in *Arabia* and *Abyssinia*, of which we have almost as little Knowledge as of that producing Incense. Authors indeed agree that it is small and thorny, but differ about the Form of its Leaves. The Incisions are made twice a Year, and the Myrrh oozing out is receiv'd upon Mats spread under the Tree for that Purpose. The best is brought to us in little Drops or Tears, of a reddish-yellow Colour, hard, transparent, bitterish, and of a strong disagreeable Smell; and some of these, when broke, discover a Kind of unctuous Liquor, the most precious Part of the Myrrh, and the real *State* of the Antients. This Gum enters into several medicinal Compositions, being of a heating, drying, and astringent Nature; and it makes a principal Ingredient in embalming the Dead. It is reckon'd excellent in Obstructions of the *Uterus*; and it is recommended for Infarctions of the Lungs, Hoarseness, Coughs, Quinsys, Pleurifies, Cholics, and for the Worms. It is chew'd to prevent Infection from contagious Diseases; and, being a good Detergent, it is used in Unguents for the healing of Wounds and Ulcers.

HERE it seems proper to take some Notice of the vegetable Productions of the *Red Sea* or *Arabian Gulf*, which abounds with a vast Variety of marine Plants of the stony Kind, such as
Madre-

Madrepores, *Fungi* or Mushrooms; *Brain-Stones*, and other coralline Bodies, which appear, when the Sea is calm, like a Grove or Forest under Water, particularly the branched *Madrepores*, whereof some are six or seven Feet high, spreading themselves like an Oak, or shooting up pyramidically like a Cypress. The Branches of the *Madrepore* are usually pink'd with a great Number of Holes or Pores, resembling Waves, Stars, Leaves, or other Figures. The *Fungus*, or Sea-Mushroom, seems to be fasten'd to the Rock by a small Root, and, contrary to the Land-Mushroom, has its Gills turn'd upwards. The *Brain-stone* appears also to have a Root*, and observes, like the *Fungus*, a certain specific Configuration, which is not usual in other coralline

* Dr. *Shaw* takes notice, that though Nature has not given the marine Plants one large Root, as it has done to those of the Land, yet that Mechanism is wisely supplied by a Number of little ones, which are distributed all over the Plant in so just a Proportion, that they are thicker upon the Branches, where the Vegetation is principally carried on, than in the Stem, where it is more at a Stand, and which therefore is often found naked, and seldom increases in the same Pro-

portion with the Branches. The terrestrial Plants could not subsist without large extensive Roots, because they are to be thereby supported against the Violence of the Wind, and their Food is to be fetch'd at a great Distance: Whereas the marine Vegetables, as they are more securely placed, so they lie within a nearer Reach of their Food, growing as it were in the midst of Plenty; and therefore an *Apparatus* of the former Kind must have been unnecessary, either to nourish or support them.

Sub-

Substances.—But we shall not enlarge at present on this Subject, reserving a fuller Account of the Nature of Coral till we come to speak of the Manner of fishing it up in the *Persian Gulf*.

THERE is nothing of the vegetable Kind in *Syria* or the *Holy Land* more celebrated than the Cedars of Mount *Libanus* or *Lebanon*, of which frequent Mention is made in the Sacred Writings. This Mountain, or rather Chain of Mountains, has formerly furnish'd vast Quantities of Cedar, which were used by the neighbouring Princes in building their most beautiful and stately Edifices, and particularly by King *Solomon* in the Temple of *Jerusalem* and several of his Palaces. These famous Trees, however, are now reduced to a small Number, some of which are remarkable for their Age and prodigious Bulk; and one in particular is said to be thirteen Yards in Circumference, and its Branches to spread every way round it for about forty Paces. Some Yards from the Ground the Trunk divides itself into five Limbs, each of them as big as a great Tree; but few of the Cedars come near to these Dimensions. These Trees are green all the Year, bearing Leaves much like those of our Juniper; and the large ones are remarkable for spreading their Tops into a perfect Round, whereas the smaller ascend in Form of a Pyramid. They have a fragrant Smell, and some of them bear a large conical Fruit like that of the Pine, but smoother, and
of

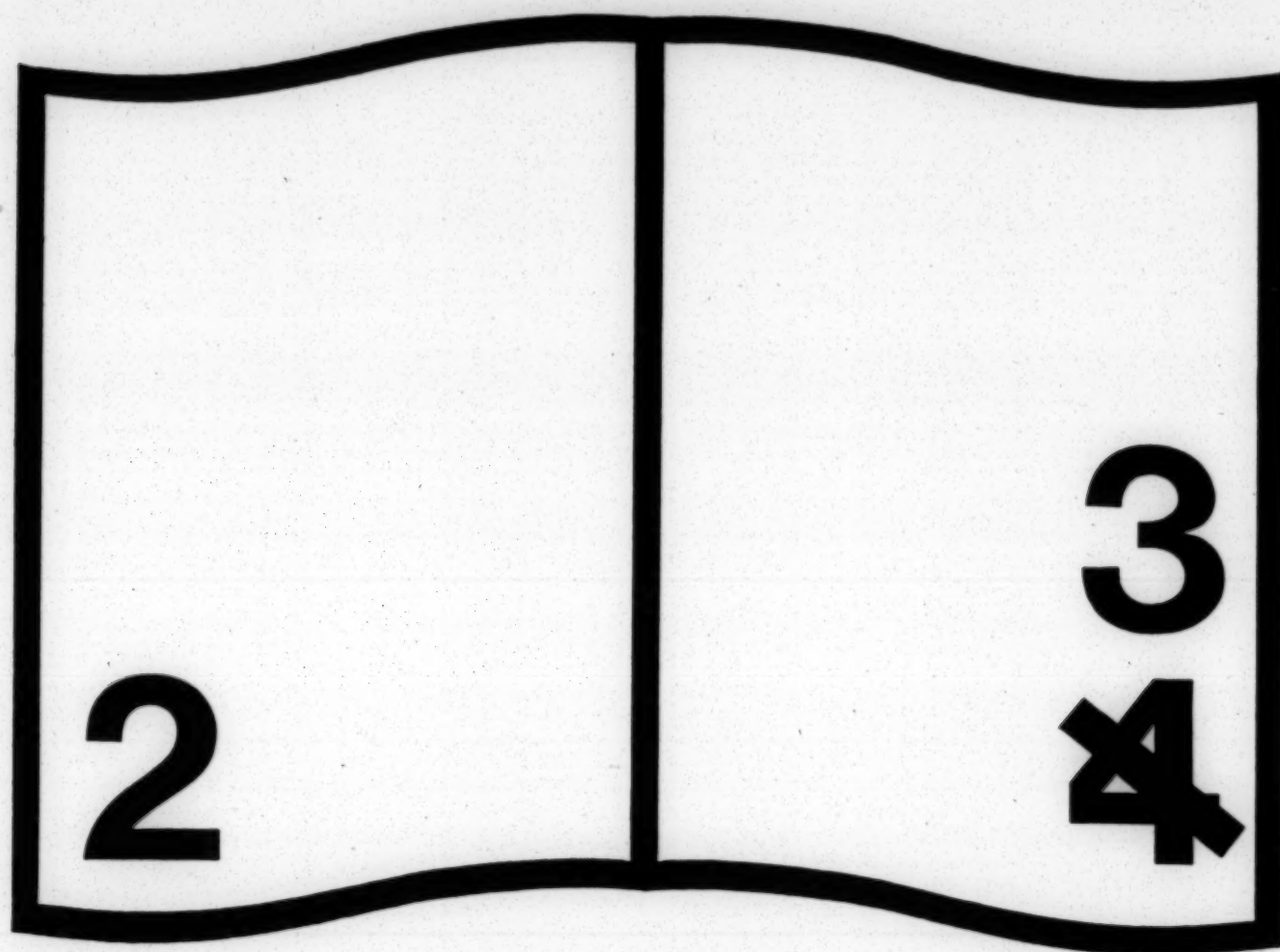
of a browner Colour, and growing in Clusters at the Ends of the Branches with the Point upwards. The Bark is smooth and brown, and the Wood towards the Outside is white and soft, but harder towards the Middle, and of a reddish Colour. It is so bitter, that no Worm will breed or harbour in it, which is the Cause of its being incorruptible. The Wood of the Cedar is also said to prevent the Putrefaction of Animal Bodies; and the Saw-dust of it is thought to be one of the Secrets of those who pretend to the Mystery of Embalming.

IN *Judaea* and *Arabia Felix* grows a Tree which yields by Incision that fine native Balsam call'd the *Balm of Gilead*. It is an Ever-green, having Leaves like those of Rue, and white Flowers in the Form of Stars, from whence spring out little pointed Pods, inclosing a Fruit like an Almond. The Juice is white at first, afterwards becomes green, and when old of the Colour of Honey. It easily dissolves in the Mouth, has a bitter and astringent Taste, and a brisk agreeable Smell. *Pomet* esteems it an excellent Diaphoretic in malignant Fevers, and of great Efficacy in detaching Ulcers of the Lungs, Kidneys, and Bladder; it is also used externally in the Cure of Wounds not attended with Contusion.—The Ancients call'd the Wood of this Tree *Xylo balsamum*, its Fruit *Carmo-balsamum*, and its Juice or Tears *Opo-balsamum*; but many are of Opinion, that the true genuine Species is not now to be met with
in

in any Part of the World. However, there is Reason to think, (with *Hoffman* and some others) that the *Balsam of Mecca* is the true *Balm of Gilead*, as it possesses all its Virtues, only is harden'd, and its Colour alter'd.

AMONG the Variety of Trees and Plants that grow about the Plains of *Jericho*, there is a prickly Shrub with narrow Leaves, which bears a Sort of green Plum, resembling a small unripe Walnut both in Shape and Colour. This Fruit is call'd *Zaccane* by the *Arabs*, who pound the Kernels of it in a Mortar, and then put them into scalding Water; to the Top whereof, after it has stood some time, rises an Oil, which they skim off carefully and preserve in Bottles. This Oil they esteem as a very valuable Remedy, preferring it even to the *Balm of Gilead*, either applied outwardly to green Wounds, or taken for inward Contusions.

NOR must we forget to mention the *Roses of Jericho*, as they are call'd, which are a Curiosity taken notice of by several judicious Travellers; though the Stories of their giving Ease to Women in Labour, and blowing only on *Christmas-Eve*, or on all the Festival-Days of the Blessed Virgin, &c. are too ridiculous to want Confutation. These Roses, we are told, grow up in Bunches, composed of three small Flowers, which are first of a red Colour, but grow whitish by Degrees, and shut and open themselves like those of Alder. What they are remarkable for is this, that being put in Water for a little



**INCORRECT
NUMBERING**

time they begin to blow and expand themselves, and being taken out of the Water they soon dry and close up again ; so that in all Seasons of the Year they may be made to blow at pleasure. M. *Thevenot* says he has seen of the Flowers in the Desarts about Mount *Sinai* ; so that they are not peculiar to the Plain of *Jericho*, as some have imagined.

IN several Parts of *Anatolia*, and particularly about *Erzerum*, grow vast Numbers of white Poppies, from the Heads of which is drawn a narcotic Juice, afterwards inspissated and brought to us in Lumps, of a blackish-brown Colour, sometimes reddish, of a bitter Taste, and a very disagreeable Smell. This is that excellent Drug we call *Opium*, which some distinguish into two Kinds ; the one flowing of itself through Incisions made in the Heads of the Poppies, and properly call'd *Opium* ; the other obtain'd by Expression, and term'd *Meconium*. The former of these is preferable on all Accounts, the latter being generally very impure, for the *Levantine*s, to shorten their Labour, and to get the more Juice, squeeze it equally from the Heads, Leaves, and even Stalks of the Plant, and then reduce it by Fire to the Thickness of an Extract ; though some say it is drawn by Decoction, and afterwards inspissated.—*Opium* is certainly a very valuable Medicine when prudently administer'd, but the Abuse of it is great and destructive. It excites Sleep, whether taken inwardly, or externally applied ; it soothes Pain,
raises

raises the Spirits, and occasions the most agreeable Sensations. It ought never to be taken on a full Stomach, because it hinders Digestion and commonly proves emetic; and it is observ'd that this and all other Narcotics, if given unseasonably, and for a long Continuance of Time, quite destroy the Appetite and bring on Hick-ups, Nausea's, and habitual Vomitings. Those who begin to take Opium ought to venture only on a very small Quantity at first, because the Effects of the same Quantity are very different on different Constitutions, and there is no knowing, but by Experience, how much any Person can bear. It is also certain, that they who accustom themselves to take Opium frequently must often increase the Dose, otherwise it gradually loses its Efficacy; insomuch that half a Dram may become requisite to produce the same Effect that half a Grain would have done when they first began the Practice. Its usual Dose is from half a Grain to two Grains, but those who have long habituated themselves to it can take fifty or sixty; and *Geoffroy* mentions a Woman who took seventy-two Grains every Day, merely to ease the Pain of a cancerous Breast. The *Turks*, whose Law commands them to abstain from Wine, have supplied its Place with this intoxicating Drug, which Custom has enabled them to eat in such Quantities as would absolutely poison People who were not accusom'd to take it. A Dram in a Day is their usual Quantity, but some take much

more*; and M. *Tournefort* tells us, that the *Dervises*, a Sort of Religious amongst them, are so habituated to the Use of Opium, that they swallow it by Ounces at a time; but this we

* Dr. *Smith* gives an Account (in the *Philosophical Transactions*, No. 221.) of one *Mustapha Satoor*, an Inhabitant of a Village near *Smyrna*, by Trade a Coffee-Man, about forty-five Years of Age, whose constant Dose of crude Opium was three Drams a Day, one Half of which he took in the Morning, and the other in the Afternoon; but that he could safely take double that Quantity. The Doctor, resolving to be an Eye-witness of this Man's Performance, provided the best Opium he could get, and weigh'd it nicely into Drams; of which the *Turk* one Morning took a Dram and a half, made up into Pills, chewing them with a little Water. The visible Effects the Opium had upon him were the making his Eyes sparkle, and giving a new Air of Life and Brightness to his Face. At Three o'Clock in the Afternoon he came to the Doctor again, and took the

same Quantity, and appear'd after it with the same Symptoms, alledging that it always had the like Effect, giving him Vigour and Spirit, and that it was become as necessary to him as any other Part of his Sustenance; that it made him fitter for Procreation; that it never affected him with Sleep or Drowsiness, but rather hinder'd his Repose when he happen'd to take too large a Dose; that he had used it for five and twenty Years, beginning with the Bigness of a Grain, and gradually proceeding to larger Quantities; and that the Want of it, and the Desire of taking it, grew daily upon him. The ill Effects of this Practice, however, were evident enough; for his Body was weak, his Legs wasted, his Gums eaten away so that the Teeth stood bare to the Roots, his Complexion was yellow, and he appeared older by twenty Years than he was in reality.

suppose

suppose is a Kind of Hyperbole, not uncommon with that pleasant Writer. The Effect of this (he informs us) is a Chearfulness like that occasion'd by drinking plentifully of Wine, which is succeeded by an agreeable Frenzy or Enthusiasm, that makes them pass for extraordinary Persons if one is ignorant of the Cause; but at length they are thrown into a Slumber, and lie without stirring Hand or Foot for a whole Day together.—The *Turks* usually take about a Dram of Opium when they are going to Battle; and the Messengers, who are obliged to travel with great Expedition, generally take some when they are weary, which gives them a fresh Supply of Strength and Spirits.—Our Practice of using a Preparation of *Opium*, which we call *Liquid Laudanum*, is not to be commended; for crude Opium answers all Intentions much better, and the Dose of it is more easily ascertain'd.

ANOTHER excellent Drug, namely *Rhubarb*, is brought to us from the *Levant*; but whether it be the Product of any Part of the *Turkish* Dominions, or from what Country it comes originally, is a Question not easy to determine. It is surprising indeed, considering the great Use of *Rhubarb* in Medicine, and the Part it maintains in Commerce, that we should be so little acquainted with the real Place of its Growth. Some will have it to come from the Kingdom of *Boutan*, at the Extremity of the *Indies*, others from the Provinces of *Xensi* and *Suchen* in *Chi-*

na; whilst others affirm it is found on the Confines of *Muscovy*, and others again only in *Persia*; but M. *Tournefort* says positively it is brought to *Erzerum* from the Country of the *Usbeck Tartars*. This is certain, that Rhubarb was unknown to the Ancients; for their Rhapontic, which nearly resembled it, was not really the same. The true Rhubarb first puts out large downy Leaves, then small Flowers in the Form of Stars, which are follow'd by the Seed. When the Root is newly drawn from the Earth, it is blackish on the Surface, and reddish within; but when dried its Outside becomes yellow, and its Inside of a Nutmeg-Colour. It is pretty solid and ponderous, has a bitterish astringent Taste, and an agreeable aromatic Odour. If it be good, it will tinge Water almost like Saffron, and when broke it appears of a lively Colour, with a Cast inclining to Vermilion. Some Druggists have an Art of disguising their old decay'd Rhubarb by giving it a yellow Tincture; but by handling it the Cheat is discover'd, for the Powder they make use of will stick to the Fingers. Rhapontic is often mix'd with Rhubarb by those who send it to *Europe*; but this Imposition may likewise be discover'd, the true Rhubarb being usually in roundish Pieces, and its internal Grain or Streaks running transversely, whereas Rhapontic is in longish Pieces, with its Streaks running lengthwise; and besides, Rhapontic being chew'd leaves a Clamminess in the Mouth, which Rhubarb does not. — This Root is

is one of the best and mildest Purgatives in Nature, and very proper to strengthen weak Stomachs and Intestines. It is a good Remedy for Worms, evacuates the Bile, and opens Obstructions of the Liver; and as it purges and strengthens at the same Time, it is very serviceable in a Looseness.

In the Neighbourhood of *Trebisond*, a City on the *Black-Sea*, there grows a certain Plant or Shrub, from the Flowers whereof it is said the Bees extract a poisonous Kind of Honey, which had like to have been fatal to the ten Thousand *Greeks* in their famous and unexampled Retreat under the Conduct of *Xenophon*. That excellent Author and great Commander informs us, that as there was Plenty of Beehives thereabouts, the Soldiers did not spare the Honey, but were soon seiz'd with an extraordinary Purging and Vomiting, attended with Deliriums and a staggering Dizziness; so that the least affected seem'd like drunken Men, whilst others rav'd like mad Men, and others lay on the Ground as if at the Point of Death. None of them died of it however, the Disorder abating the next Day; but some were three or four Days before they recover'd, being so weak after such violent Evacuations, that they could hardly crawl, and were forced to go into *Trebisond*, where they were kindly receiv'd by the Inhabitants. *M. Tournefort* says there is all the Likelihood in the World that this Honey was extracted from the Flowers of the *Chamaerhodandros*,

dros, which he says grows plentifully about *Trebisond*, and which we suspect is a Kind of Rose-Laurel or Oleander. If there is any Truth in this Matter, it is strange we have no farther Accounts of the pernicious Effects of this Honey upon the present Inhabitants of the Country, unless we suppose they do not eat any; and one would think they should be afraid of it, since *Tournefort* tells us they have an ancient Tradition, grounded perhaps upon several Observations, that the Honey which the Bees make after sucking the Flowers of the Plant above-mention'd stupifies those that eat it, and causes Lethargies.

AFTER this Survey of the Continent, some of the vegetable Productions of the *Asiatic* Islands in the *Archipelago* deserve our Attention, particularly those of *Cbios*, now *Scio*, where the *Lentisk*, which yields a valuable Gum call'd *Mastich*, grows in great Abundance. There are twenty Villages in *Scio* where they have Plantations of *Lentisks*, each of which Villages is obliged to pay annually to the Grand Signior a certain Quantity of *Mastich*, according to the Number of Trees they cultivate. This Tree commonly grows to the Height of ten or twelve Feet, spreading its Branches in a circular Manner, which in Time become crooked, and bend towards the Ground. The Trunk is about a Foot in Diameter, cover'd with a rugged ash-colour'd Bark; and the Leaves are disposed in Couples, being broadest in the Middle, and
growing

growing narrower towards each Extremity. From the Junctures of the Leaves spring Flowers in Clusters like Grapes, in which Manner the Fruit also grows, having a white Kernel in each Berry. The Beginning of *August* they make Incisions in the Bark of these Trees, cutting it cross-ways with large Knives, and from thence the nutritious Juice distils in small Drops, forming the Grains of Mastich, which hardening on the Ground are carefully swept up and sifted. About the Middle of *August* they gather the greatest Quantities, if the Weather be dry and serene; but if it be rainy, the Tears are all lost. Towards the End of *September* the Mastich flows again, but not so plentifully as before, and perhaps not altogether of so good a Quality. When it is sifted, the Dust that flies from it sticks so fast to the Faces of Persons employ'd in that Business, that they are forced to use Oil to wash it off. —The *Furks* take much Delight in chewing Mastich, sometimes burn it among other Perfumes, and sometimes put a few Grains of it into their Bread to give it an agreeable Flavour. The Ladies of the Grand Signior's Seraglio consume great Quantities of this Gum, chewing it by way of Amusement, or to sweeten their Breath, especially in a Morning fasting. It is of considerable Use in Medicine, being moderately warm, drying, and emollient, so that it strengthens the Stomach, stops Vomiting, cures Coughs and Spitting of Blood, and fortifies

tifies the Head and nervous System. If good, its Granules are dry, almost transparent, of a pale yellow Colour, have a fragrant Smell, and a resinous astringent Taste.

THE *Terebinthus*, or Turpentine-Tree, is also the Product of *Scio*, where it grows without Culture on the Sides of the Highways, or on the Borders of Vineyards. It is as tall and spreading as the Lentisk, has a Bark much of the same Colour, and Leaves of the same Shape, but longer and broader. The Flowers grow in Bunches, having each of them five *Stamina*, whose *Apices* are full of a yellowish Dust or *Farina*. The Fruit likewise appears in Bunches three or four Inches long, which rise from the Center of a Cup consisting of five small pointed Leaves; but each Embryo afterwards turns to a Cod of an Orange-Colour, inclosing a white fleshy Kernel with a reddish Coat. In the Months of *August* and *September* they make Incisions in the Trunks of these Trees, and the Turpentine runs down upon flat Stones placed underneath to receive it. This Liquor is of a whitish Colour with a greenish Cast, clear, and almost transparent, of a pleasant Smell, and undoubtedly the best of all Turpentine for internal Use. It is a most excellent natural Balsam, and very detergent, being prescribed as such in Abscesses and Ulcers, especially those of the Lungs, Breast, and Urinary Passages, which last it remarkably cleanses from Gravel and mucous Concretions. It is a very great Diuretic,
and

and for that Reason M. *Tournefort* thinks it improper for Persons troubled with the Stone, to whom Medicines of that Nature do rather Harm than Good, as has been found by Experience. Turpentine in general are so extremely penetrating, that when applied externally they enter the Pores of the Skin, and communicate a Smell to the Urine; and even by sitting in a Room that has been lately painted, the Urine has often been known to be affected in the same Manner. — The *Terebinthus* grows also in *Cyprus*, but the Turpentine brought from thence is browner and fuller of Dross than that of *Scio*, which is indisputably the best of any, though not much in Use on account of its Scarcity*.

* We have several Kinds of Turpentine, whereof that of *Strasbourg*, produced by the *Abies* or Silver Fir, is most commonly used amongst us; and by many it is prefer'd to that of *Venice*, from which it is distinguish'd by its green Hue, its Clearness, its extraordinary Fragrancy, and Citron-Flavour. Properly speaking, there is no such Thing as *Venice* Turpentine; for though a Turpentine was formerly brought from thence, what now goes by that Name comes from *Dauphiné*. This is of a yellowish Colour, of the Consistence of new Honey, of a

bitterish Taste and grateful Smell, and flows from the Larch-Tree either spontaneously or by Incision. That flowing naturally is a Kind of Balsam, frequently substituted for that of *Peru*, to which it is not inferior in Virtue. What is obtain'd by Incision, after the spontaneous Discharge is over, is of considerable Use, particularly for making the best white Varnish. The Turpentine of *Bordeaux*, which is whitish and thick as Honey, does not ooze from the Tree in the Manner it is sent to us, but is a Composition of several Ingredients.

WE cannot leave *Scio* without giving an Account of their curious Method of cultivating and ripening their Figs, which the Ancients call'd *Caprification*, and which some modern Naturalists have look'd upon as a mere Chimera; but M. *Tournefort* has put the Matter entirely out of Doubt, by giving us the whole Process of it, as he learnt in the Island of *Zia*, where it is likewise practis'd. To understand rightly this extraordinary Kind of Husbandry, we must observe, that in most of the Islands of the *Archipelago* they have two Sorts of Fig-trees; the first call'd *Ornos*, from the old Greek *Erinos*, a Wild Fig-tree, the *Caprificus* of *Pliny*; and the second the domestick or Garden Fig-tree. The wild Sort (says our Author) bears three Kinds of Fruit, call'd *Fornites*, *Cratitires*, and *Orni*, of absolute Necessity towards ripening the Garden-Fig. In *August* the *Fornites* appear, which hold to *November* without ripening; and in these are bred small Worms that turn to a Sort of Gnats, no where to be seen but about these Trees. Towards the End of *September* the *Cratitires* shew themselves, into which the Gnats of the former Fruit make Punctures, and the *Fornites* decay and fall off when the Gnats have left them. The *Cratitires* remain on the Tree till *May*, inclosing and nourishing the Eggs deposited in them by the Gnats of the *Fornites* when they made the afore-said Punctures. In *May* the *Orni*, the largest of the three Sorts of Fruit, begin to appear; which,

which, when grown to a certain Size, are prick'd just where the Bud opens by the Gnats issuing from the *Cratitires*. But sometimes it happens, that the Gnats of this second Fruit do not come forth so soon as the *Orni* of the very same Tree are disposed to receive them; in which Case the Husbandman is obliged to bring *Cratitires* from another Tree, and fix them on the Branches of that Tree whose *Orni* are ready for the Puncture; for if this be neglected, the *Orni* fall, and the Gnats of the *Cratitires* afterwards fly away. It requires a thorough Acquaintance with this Sort of Culture, (as M. *Tournefort* observes) to know the critical Juncture when the Fruit wants such Assistance; and in order to this the Bud of the Fig is to be watch'd with the greatest Attention, as that Part not only indicates the Time when the Prickers are ready to come forth, but also when the Fig is to be prick'd with Success. If the Bud be too hard, the Gnat cannot inject its Eggs; and the Fruit drops when the Bud is too much expanded. —But to come to the Purpose to which the Wild Fig-tree is made subservient. During the Months of *June* and *July* the Peasants take the *Orni*, when their Gnats are ready to break out, and carry them to the Garden Fig-tree; in which they are obliged to observe the greatest Exactness with regard to the Time, for otherwise the *Orni* drop, and the Fruit of the domestick Fig-tree, not ripening for want of its proper Puncture, soon falls in like manner. Of

this the Husbandman is so sensible, that he never lets a Morning pass without making a careful Inspection into the State of his *Orni*, transferring those which are in Forwardness to his Garden Fig-trees. On this depends the Goodness of his Crop; and, in short, by his Care and proper Management of the *Orni*, the Garden-Figs become ripe in about six Weeks from the Time of their receiving the Puncture of the Insect.

WE shall conclude this Article with our Author's ingenious Conjecture as to the Manner in which the Puncture of the Gnat produces such a wonderful Effect. Perhaps (says he) the Prickers contribute to the Maturity of the Garden-Fig by causing the nutritious Juice to extravasate, whose Vessels they tear asunder in depositing their Eggs. Perhaps too, besides their Eggs, they leave behind them some Sort of Liquor, proper to ferment gently with the Milk of the Figs, and make their Flesh tender. The Figs in *Provence*, and even at *Paris*, ripen much sooner for having their Buds prick'd with a Straw dipp'd in Olive-Oil. Plums and Pears prick'd by some Insect do likewise ripen much the faster for it, and the Flesh round the Puncture is better tasted than the rest. It is not to be disputed, (continues he) but that a considerable Change happens to the Contexture of Fruits so prick'd, just the same as to the Parts of Animals pierced with any sharp Instrument.

ANIMALS.

ANIMALS.

THERE is scarce any Creature more famous among ancient and modern Writers than the *Chameleon*, an Animal of the Lizard Kind, and frequently found in the Neighbourhood of *Smyrna*, especially about the old Walls of the Castle, where they breed amongst Heap of Ruins. The Head of the Chameleon somewhat larger than that of the common Lizard, its Back gibbous like a Hog's, and its four Feet are divided into Claws resembling those of a Parrot. It has a long flattish Tail of great Use to it in climbing, for by that it will hang to the Branches of a Tree; and so draw up its whole Body; of which Sir *George Wheler* gives us a remarkable Instance, who having put a little Chameleon into a deep Glass, the Animal, by standing on its fore Feet, and raising itself up backwards, caught hold of the Edge of the Glass with its Tail, whereby it drew up its Body, and had like to have made its Escape. The Structure of its Belly seems to be all Thorax or Breast, having Ribs from the Neck to the Beginning of the Tail, the larger of which tend backwards from the Spine, and the others forwards from the Extremities of the former. Its Lungs reach almost the Length of its Body, consisting of a Membrane Substance very thin and transparent, and resembling a little light Froth, having a Multitude of Cells

or Divisions. The Skin of the Animal is grain'd with globular Inequalities, like Shagreen, the largest whereof are about the Head, the next on the Ridge of the Back, and the next on the Legs, the finest of all being on the Sides and Belly. It has no Ears that can be discern'd, but has two small Apertures in the Head, which serve for Nostrils. Its Head is immoveable, unless as it turns with the Body; but to make amends for this Defect, Nature has given it very fine Eyes about the Bigness of a Pea, which are cover'd with a Skin almost like that of the Body, the Grain being in Circles that diminish gradually to the Center, where there is a Hole no bigger than a Pin's Head, through which the Light is receiv'd. These Eyes are quite independent of each other, and capable of all the different Motions that can be imagined; for the Animal can either turn them both the same Way, or one backwards and the other forwards, one upwards and the other downwards, or can keep one fix'd upon any Object, whilst the other is moving according to the Motion of another Object, as Sir *George Wheler* and Dr. *Spon* frequently observed to their great Astonishment. The Tongue (which some compare to the Trunk of an Elephant) is contain'd in a Sort of Sheath or strong Membrane, from whence the Chameleon darts it with surprising Swiftmess upon Flies that come within its Reach, which stick to a glutinous or viscous Matter excreted from it, and by that means are drawn

drawn into its Mouth. Mr. *Moore* says he has seen a Chameleon at *Joar* in *Africa* catch thirty or forty Flies in a Day with his Tongue, which he can shoot out eight or ten Inches; and indeed Flies are the ordinary Food of the Chameleon, Signs of which have been discover'd in its Excrements, and in the Stomachs of some that have been dissected: So that it is a vulgar Error to suppose these Animals live upon Air only, though it is certain they will live a great while without taking any visible Sustenance, like Serpents and other Creatures of the same cold Nature; and sometimes they will suck in Air till they are swell'd considerably beyond their usual Size.—But of all Things relating to the Chameleon, the most amazing, and the most difficult to be accounted for, is the Faculty it is endued with of changing its Colour, and assuming those of Objects near it. The usual Colour of this Animal (according to Sir *George Wheler*) is Green, darker towards the Back, and lighter towards the Belly, inclining to a Yellow, with Spots sometimes reddish and sometimes whitish; but Mr. *Moore* observ'd, that when they slept they were generally of a bright Yellow. Sir *George* found a Chameleon on the Top of a green Bush, which, when he first cast his Eye upon it, appear'd green likewise*; but

* *Pliny* tells us of a Beast the Trees, Shrubs, &c. call'd the *Tarandus*, that amongst which he hid himself, and was therefore fel-

as soon as it perceiv'd he saw it, it drop'd to the Ground; and after looking for it earnestly a considerable Time, he discover'd it creeping away to a Hole in a Rock, being changed to a dark brown Colour, exactly like the Earth it crept upon. The same Gentleman observ'd several Chameleons of a greyish Colour, like the Stones speckled with Moss, amongst which they harbour'd. Sometimes from a Green all over, they suddenly become full of black Spots, especially when excited or disturbed. If laid on a Napkin or under a white Cap, they become whitish, or of a Cream-Colour; but they are not known to change to Red or Blue, though laid upon Cloth of those Colours for a long time together. In short, it is far from being true, that they change their Colour according to every Object or Body near them, nor do the Changes seem to be regulated by certain and invariable Laws, the same Causes not always producing the same Effects. Mr. Moore has observ'd them change their Colours twenty

dom taken: But if there be any Truth in the Story, Dr. Derham supposes it must proceed from the Animal's chusing to frequent such Places as were agreeable to its own Colour; as he has constantly observ'd of Caterpillars and other Insects, which fix themselves on such Things as are of the same

Colour with themselves, and thereby deceive the Eye of the Spectator. Thus the Caterpillar that feeds on Elder, the Doctor has more than once seen so cunningly adhering to the small Branches of its own Colour, that it might easily be mistaken for a Bit of Wood, even on a careful Inspection.

times

times in a Day, sometimes to that of the Object near them, but not always; so that these Mutations do not appear to be involuntary, but at the Pleasure of the Animal. Be that as it will, the Manner in which they are affected is one of those Secrets of Nature that have not yet been thoroughly discover'd by the most curious Enquiries*.

THE Sheep in the Country about *Symrna* are a Curiosity that ought to be mention'd, on ac-

* Naturalists are not at all agreed as to the Reason or Manner of the Chameleon's changing its Colour. Some, as *Seneca*, suppose it is effected by Suffusion; others, as the *Cartesians*, by the different Disposition of the Parts that compose the Skin, which give a different Modification to the Rays of Light. Dr. *Goddard* ascribes the Change to the Grains or globular Inequalities of the Skin, which, in the several Postures, he thinks may shew several Colours, and, when the Creature is in full Vigour, may have the Effect of Mirrour, and reflect the Colours of adjacent Bodies. But these Hypotheses being all defective, we must have Recourse to another, which seems to be better founded; for the Chameleon

being represented as a very thin skinny Animal, and yet capable of making itself appear flat and plump at pleasure, it must have an extraordinary Command over its Skin as to Tension or Laxness. Now the Animal having it in its Power to fill the Skin more or less, it is able not only to alter the Tone and Texture of the Fibres, on which their reflexive Quality in a great measure depends, but also to bring Parts into Sight which before lay conceal'd, or to conceal such as before lay open; and it is highly probable, that the Parts usually cover'd are of a Colour somewhat different from those constantly exposed to the Air. On this Supposition, it is evident, the Chameleon has a Power to re-

count

count of their large Tails, which are indeed mere Lumps of Fat hanging to the Rump of the Animal, and often weighing (to speak within Compass) ten or twelve Pounds or upwards. This Fat, when the Sheep are old, is no better than Tallow; but that of Lambs is esteem'd as good as any Marrow. These Sheep are not peculiar to *Anatolia*, but are common in *Syria*, *Persia*, and other Parts of the East, as we are inform'd by Travellers, who speak of some in those Countries whose Tails are so thick and long as to weigh twenty-five or thirty Pounds, and are therefore laid upon a light Sort of Carriage which the Sheep draws after it, as well to ease the Creature of its Burden, as to prevent the Wool from being spoil'd by trailing on the Ground.

Not only the Sheep of *Anatolia*, but the Goats also, are taken notice of by Travellers as an extraordinary Species. In the Champaign of *Angora*, formerly *Ancyra*, they breed the most beautiful Goats in the World, their Hair being of a dazzling Whiteness, as fine as Silk, naturally curl'd in Locks eight or Inches long, which is work'd up in the finest Stuffs, especially Camblet. Little of this Hair is exported unspun, the People of the Country being employ'd

fleet different colour'd Rays from the same Parts; also to make some Parts reflect- ing, and to prevent others	reflecting: And hence pro- ceed those Changes, and that Medley of Colours, for which this Animal is so remarkable.
---	---

in spinning it into Thread, which is manufactured at *Angora* without Mixture, contrary to what is practised in *Europe*. M. *Tournefort* says, these Goats are only to be seen within four or five Days Journey of *Angora*, the Breed degenerating if they are carried farther.

AMONG the domestic Animals to be found in the *Asiatic* Dominions of the *Turks*, perhaps none deserves our Notice more than the *Camel*, of which there are great Numbers in *Arabia*. These Creatures are wonderfully fitted by Providence for travelling through hot sandy Deserts, being able to go four or five Days (some say seven or eight) without Water. For this Reason they are very much used in long Journeys, taken by Merchants who go in large Companies call'd *Caravans*, to prevent their being plunder'd by Robbers, with which the Eastern Countries are much infested. The Camels browse on the little Shrubs they find by the Way, or if they meet with nothing of that Nature, half a Gallon of Beans and Barley, or a few Balls made of the Meal, which Travelers generally carry along with them, will nourish one of them for a whole Day. Their usual Burden is seven or eight hundred Weight, with which they travel about two Miles and a half in an Hour, and their Day's Journey is frequently twelve or fifteen Hours. The Camel has a Protuberance on its Back, is generally of a brownish Colour, and is said to live to the Age of fifty, and sometimes to a hundred Years.

It

It has a fleshy Foot, which is well adapted to the hot sandy Countries, where a Hoof would sooner be destroy'd. They are taught to lie down to receive their Burden; and when the Day's Journey is over, Travellers usually bind one of their Legs to prevent their rising, or else tie the Creatures together with a small Rope, that they may not stray away without disturbing one another. The *Arabs* do not kill this Creature for Food; but the *Turks* eat the Flesh of the young ones, which they reckon a great Dainty.—There is a Species of these Creatures we call *Dromedaries*, which are of a finer Shape than the common Camel, and have a less Protuberance on the Back. They will pace and gallop very swiftly, and it is said will easily carry a Person a hundred Miles a Day; nay, some of the *Arabs* affirm, that a Dromedary will travel as far in one Day, as one of their best Horses will in six or seven. Its upper Lip is cloven in the Middle like a Hare's, and it has two broad Nails on its Feet, which are round and fleshy, without Division. We are told that Dromedaries are blind some Days after their Birth, like Puppies or Kittens.

THE *Hyena* is a fierce Kind of Animal, frequent enough in *Anatolia*, having Feet and Legs like a Man's, and Bristles on his Back like the Mane of a Horse. It is about the Size of a Fox, and is said to be endued with great Subtilty; but the Noise it makes alarms Travellers, and gives them Notice to avoid the Danger.

Danger. This Creature is reported to feed upon the Corpses of Men, which he will dig out of their Graves; but perhaps this is only when press'd by the Severity of Hunger, and for want of a more delicious Morsel.

THE *Jackal* is another Animal common in these Parts of *Asia*, which, though not much bigger than a Fox, is so strong and fierce, that he ventures to attack a Man, and frequently seizes Cows, Sheep, &c. He is said to be the Lion's Caterer, and that when he seizes his Prey he makes a hideous Noise to inform the Lion of his Success, who, if he be within Hearing, comes at his Call, and the submissive Butcher retires till his Master has eat what he pleases: But this we suppose, like many other Stories told of wild Beasts, is entirely fabulous. Of his pretended Master we shall speak when we come to *Africa*.

THERE are likewise many *Tigers* to be met with in the mountainous Parts of *Asia Minor*, and M. *Tournefort* speaks of several upon Mount *Araret*, which walk'd about very quietly, or play'd at a reasonable Distance from them; for though they are ravenous Creatures, they seldom attack their Prey except in the Night-time. Their Skin is beautifully spotted, and as they are very swift, they are seldom taken but in Defence of their Young.

OF the feather'd Kind the *Ostrich* claims our first Attention, which is frequent in *Arabia*, and is perhaps the largest Bird in Nature. Its
Neck

Neck and Head are remarkable, being shaped almost like a Camel's, which Creature the Ostrich also seems to imitate in its Manner of walking. Its Head rises to the Height of a Man on horseback, and sometimes higher; and its Wings are very strong, but too short to raise it from the Ground. Assisted by these, however, they run a great Pace; and it is not only a Diversion to the *Arabs* to ride them down, but brings them a considerable Profit; for they have a Method of shaking the dead Body of an Ostrich, so as to make the Fat dissolve into a Sort of Oil, which they carry to *Alexandria*, where it is used as an Ointment, and sometimes taken inwardly for Disorders arising from a cold Constitution. The Legs and Thighs of this Bird are like a Heron's, Allowance being made for the different Proportion; and each Foot has three Claws arm'd with Horn, to facilitate its March.—Her Eggs are said to be as big as the Head of a young Child, and to be finely vein'd like Marble, which she hides inconsiderately in the Sand, and leaves them to be hatched by the Heat of the Sun. This Disposition, which seems to manifest so much Disregard to her Young, is taken notice of in the Sacred Writings*, and certainly argues a great

* In *Job xxxix.* we read, *crush them, or that the*
 that the Ostrich leaveth her *wild Beast may break them.*
 Eggs in the Earth, and warmeth them in the Dust, and *She is hardened against her*
 forgetteth that the Foot may *Young ones, as though they*
were not hers: Her Labour is

Want



Want of that Precaution observable in other Animals. But there is another Circumstance related of the Ostrich, which shews an uncommon Stupidity, *viz.* that when she is pursued by the Hunters, she runs to hide her Head, and particularly her Eyes, behind a Tree, leaving her large Body exposed to View, and imagining that as she no longer sees her Pursuers, the Danger is over, and she has nothing to apprehend. — What is reported of this Animal's eating and digesting Iron has much the Air of Fable; for though they may swallow small Bits of that Metal, as other Birds do little Pebbles, it is not to derive any Nourishment from them, but only to bruise and grind the Food in their

in vain, without Fear, because God hath deprived her of Wisdom, neither hath he imparted unto her Understanding; that is, as Dr. Derham explains it, he hath denied her that Wisdom, that natural Instinct to provide for and nurse up her Young, that most other Creatures are endued with. It is not very strange (the Doctor thinks) that no other Incubation than the Sun should produce their Young, but it is very odd and wonderful that any one Species should vary from all the rest of the Tribe. The singular Care of the Creator,

in this Case, is likewise very remarkable, in supplying some other way the Want of Care and Affection in the Parent-Animal, so that the Young should, notwithstanding, be bred up in the large and barren Deserts of Arabia and Africa, the most unlikely and improper Places (in all human Opinion) to afford Sustenance to young helpless Creatures; but the fittest therefore to give Demonstrations of the Wisdom, Care, and especial Providence of the infinite Creator and Conservator of the World.

Stomachs, to moderate the Operation of an excessive Heat, or by its Weight to open a Passage into the Intestines. — The Feathers of the Ostrich are used by way of Ornament on Testers of Beds, Canopies, &c. and our theatrical Heroes owe much of their Grandeur to the Plumes of this Animal.

IN the Plains near the River *Araxes* M. *Tournefort* took notice of several remarkable Sorts of Birds, and amongst the rest he observ'd a Species of Herons, whose Bodies were no bigger than a Pigeon, though their Legs were a Foot and a half long. But nothing (says that Traveller) comes up to the Beauty of an admirable Bird, as large as a Raven, with black Wings, the Feathers on the Back towards the Rump of a purple Colour, and those towards the Neck of a shining golden Green. The Feathers on the Middle of the Neck are of a bright Flame-Colour, and those on the Head of a dazzling Green, which is crown'd with a Tuft of the same Colour. The Bill of this Bird is brown, like that of a Raven.

THE tame Partridges in the Island of *Scio* are too great a Curiosity to be pass'd over in Silence. In the Morning, we are told, the Country-People drive them into the Fields to seek their Food, each Family trusting its Stock to a common Keeper, who in the Evening calls them home again with a Whistle: Or if an Owner has a mind to have his brought home in the Day-time, the same Signal does the Business,

ness, the Birds following it without the least Confusion. This may appear a little incredible, but we have M. *Tournefort*'s Authority for the Truth of it; who likewise says he has seen a Man in *Provence* that used to lead Drovers of Partridges into the Country, and call them to him when he pleased, having them so entirely at Command, that he would take them up in his Hand, put them into his Bosom, and afterwards dismiss them to pick up a Livelihood with the rest of the Flock.

WE shall finish this Article with an Account of the *Purple-Fish*, anciently found in the *Mediterranean* near the City of *Tyre*, whereof we have Descriptions in several Authors, and Shells in most of the Cabinets of the Curious. This celebrated Fish is a Kind of *Buccinum*, a Name given by the Ancients to all Fishes whose Shell bears any Resemblance to a Hunting-Horn; and it appears from *Pliny*, that from such a Shell-Fish the so much fam'd Purple was obtain'd. This rich Dye seems to have arrived at its highest Perfection in *Pliny*'s Days, in the Reigns of the *Vespasians*, when the Artists of the Imperial City of the World strove to excel each other in Preparations of that tinging Juice, to gratify the Luxury of the great Men of those Times; for this Colour was then sold at such a high Rate, that a Pound of the fine *Tyrian* Purple cost a thousand *Roman Denarii*, which is more than thirty Pounds Sterling. M. *Reaumur*, and Authors in general who have treated

of this Fish, are agreed that the Purple-Matter is lodged in a particular Vein; but there are several Kinds, differing in Size and Shell, and also in the Colour of the tinging Liquor. This Gentleman observ'd some on the Coast of *Poitou*, where he also discover'd a different Kind of Purple, produced in oval Grains about a Quarter of an Inch long, full of a white Liquor bordering on Yellow, which cover certain Stones or Sands, about which the *Buccina* used to assemble. These Grains being bruised on white Linen, at first only tinge it yellow, but in three or four Minutes give it a very beautiful Purple Red, provided the Linen be exposed to the open Air; for the Air of a Room will not do, even though the Windows be open. M. *Reaumur* adds, that the Liquor of the *Buccinum* and that of the Grains seems to be nearly of the same Nature, except that the latter is more watry.

If the Fish itself be not now found near the Coast where *Tyre* stood, Dr. *Shaw* assures us, that the Shells of the *Purpura* of *Rondeletius* are very common upon the *Tyrian* Shore. Several of those which the Doctor saw had their Insides beautified with purplish Stręaks, which Circumstance he thinks may instruct us that they once belong'd to such an Inhabitant. However, they are found in great Abundance in the *American* Seas; and Mr. *Cole* (in the *Philosophical Transactions*) gives an Account of a Person who lived by the Sea Side in *Ireland*, and made

made considerable Profit by marking fine Linnen with a delicate durable Crimson-Colour, which he did with some liquid Substance extracted from a Shell-Fish. Upon this Mr. Cole made several Experiments on the Shell-Fish taken on that Coast, till at last he obtain'd the Colour in the following Manner. The Shells of this Fish, being harder than most other Kinds, are to be broken with the smart Stroke of a Hammer on a Plate of Iron, or firm Piece of Timber, with their Mouths downwards, so as not to crush the Body of the Fish within; and after picking off the broken Pieces, there appears a white Vein lying transversly in a little Furrow or Cleft, next to the Head of the Fish, which must be dug out with the stiff Point of a Horse-hair Pencil made short and tapering. The Liquor contain'd in this Vein, being laid on Linnen, appears presently of a light green Colour, and if exposed to the Sun, soon changes into a deep Green, and in a few Minutes more into a Blue; then it becomes of a purplish Red, and by lying an Hour or two longer, supposing the Sun still shining, it turns to a beautiful Purple, beyond which the Sun's Heat has no farther Effect; but by washing it in scalding Water and Soap, and again exposing it to the Sun and Wind, it becomes of a fair bright Crimson, which if well manag'd, though no Styptic be used to bind it, will bear washing without losing much of its Beauty. — The Shells of these Fish (Mr. Cole observes) are of various Colours, but most of them white.

and some are red, when newly taken off the Rocks, some yellow, others of both these Colours, and others of a blackish Brown. The Animal seems to be amphibious, living either on Land or in the Water ; but it must be Sea-Water, for in fresh they soon expire. It is pretty to observe the Shift they make to come at Air ; for being put into a Vessel of Sea-Water, after lying for some Time at the Bottom, they creep up to the Surface, and by extending a Kind of Lip they adhere to the Sides of the Vessel, with about half that Part above the Water, sometimes creeping down under it, and then rising again to their former Station. The Fish, when boil'd, is indifferent Food ; as well tasted, at least, as Limpets or Periwinkles, though their Flesh is somewhat harder. — As to the tinging Juice of this Fish, our Author conjectures it to be the spermatic or prolific Matter by which it propagates its Species, which seems probable from its Consistence, and its virulent fetid Savour ; or else it may be a Humour, which, by its vital Energy, supplies the Want of Heart, Liver, Blood, &c. in this as in other bloodless Animals.

WE should now proceed to survey the Antiquities of the *Asiatic Turkey*, but there are a few Particulars in the Countries we are speaking of, which could not well be brought under any of the foregoing Heads, and yet seem too remarkable to be omitted ; which therefore we shall here throw together as

MISCELLANEOUS ARTICLES.

THE Lake *Asphaltites*, or *Dead-Sea*, is a Curiosity in Natural History, concerning which several groundless Opinions have prevail'd. This Lake is generally supposed to have had its Origin from the Destruction of *Sodom* and *Gomorrab*, the Ruins of which Cities some Travellers pretend to have seen under the Water. The Formation of it indeed may be tolerably well accounted for, by supposing that the Thunder and Lightning, which were undoubtedly concern'd in the Overthrow of those Cities, falling in great Abundance upon some Pits of Bitumen, the Veins of that combustible Matter immediately took fire, which penetrating into the Bowels of the Country, and the Ground subsiding, an Earthquake ensued; and so the Waters running to this Cavity, and mixing with a vast Quantity of bituminous Matter, would form a Lake of such Qualities as it is at present known to possess. It might be thought Rashness to call in question an Opinion so universally receiv'd among Christians, which yet has been contradicted, not to say confuted, by an ingenious Writer, whose Arguments are chiefly founded on Scripture itself. — This Lake seems to have obtain'd the Name of the *Dead-Sea* from a Notion that its Steam or Stench kill'd all Birds that attempted to fly over

over it, and that no Fish or other Creature could live in it. As to the former, there is sufficient Evidence of its being a Mistake, Birds being frequently seen flying across it without receiving any Injury; and as to the latter, there is good Reason to doubt the Truth of it, some Shells, like those of Oysters, having been found upon the Shore. The Water, though very clear, is extremely salt, and withal bitter and nauseous; which might therefore well enough occasion such a Tradition.

UPON the Shore of this Sea we are told by Travellers there are abundance of small black Pebbles, which easily take fire if held to the Flame of a Candle, and yield a very offensive stinking Smoke; but their most remarkable Property is this, that they only lose of their Weight by burning, their Bulk suffering no Diminution. They are capable of as fine a Polish as black Marble, and are said to be found plentifully, and of a considerable Size, in the neighbouring Mountains.* This is the Bitumen for which the *Dead Sea* has been always famous, and which Dr. *Shaw* was inform'd is rais'd, at certain Times, from the Bottom in large Hemispheres; which as soon as they come to the Sur-

* This Sort of *Asphaltum* (Mr. *Hill* observes) is not peculiar to the Country about the *Dead Sea*, but found also in *Spain*, *France*, and *Italy*. It yields an Oil which is an excellent Cement, and is suppos'd to have been the Bitumen which we are told supplied the Place of Mortar in building the Walls of the ancient *Babylon*.

face, and so are acted upon by the external Air, burst at once with great Smoke and Noise, like the *Pulvis fulminans* of the Chymists, and disperse themselves round about in a thousand Pieces. But this (the Doctor adds) happens only near the Shore, for in greater Depths the Eruptions are supposed to discover themselves only in such Columns of Smoke as are now and then observed to arise from the Lake: And perhaps to such Eruptions may be attributed that Variety of Pits and Cavities found in the Neighbourhood of the Lake, which Mr. *Maundrell* justly compares to those Places in *England* where there have formerly been Lime-Kilns. The Bitumen (continues the Doctor) is probably accompanied from the Bottom with Sulphur, both of them being found promiscuously upon the Wash of the Shore. The latter is exactly the same with common native Sulphur; the former is friable, heavier than Water, and yields upon Friction, or by being set on Fire, a fetid Smell, as was observed above. It is as black as Jet, and exactly of the same shining Appearance.

THERE is a wonderful Circumstance mention'd by *Josephus*, of the *Dead Sea's* changing its Colour three times a Day, and some Travellers have pretended the same Thing: But such Changes, if there be any Truth in the Report at all, might undoubtedly be accounted for by considering the Nature of its Situation, the Soil of the adjacent Country, or other natural Causes, without having Recourse to Miracle.

race. As for the *Apples of Sodom*, or *infernal Apples*, said to grow on the Borders of the Lake, and described to be extremely fair and beautiful without, but all Soot and Ashes within, we may venture to conclude they never had any Existence, except in some poetical or superstitious Brain.

THE River *Tigris*, which rises in *Turcomania*, has ever been famed for its subterraneous Course, though perhaps all is not true that has been said about such Rivers, as we have observed towards the Beginning of this Work. It is reported to run through a Lake without mixing its Waters, and to sink into the Earth near Mount *Taurus*, running quite underneath it, and rising again on the other Side, The Cavern through which it passes is call'd *Zoroanda*; and hence *Strabo's* Mistake is supposed to have proceeded, who places the Source of this River where it issues from the Cavern, or, as he styles it, on the South Side of Mount *Niphates*, which is a Part of the *Taurus*. After this it runs through another Lake, and sinking again into the Ground, it runs twenty-five Miles unseen, and there re-appearing pursues its Course with great Rapidity. Having join'd the *Euphrates*, they both run together to the *Persian Gulf*, under the Name of *Schat-el-Arab*, or *River of the Arabs*, where they empty themselves by one common Mouth or Channel; though *Pliny* informs us that formerly they had each a separate one,

one, and that in his Time the Traces of the old one were still remaining.

MR. *Thevenot* tells us of a peculiar Sort of Boats used at *Mosul* to carry Goods and Passengers upon the *Tigris*, which are made of a great Number of *Borachios*, or Goat-skins, blown up like Bladders, and tied together with strong Ropes. Upon these are laid Hurdles made of Poles fasten'd together with Withies, over which are placed a Sort of Benches two Feet and a half high, and at a like Distance from each other. Over these Benches are laid other Hurdles, on which they place the Goods and Passengers, leaving a Border round them two or three Feet in Breadth. These Boats, (if they deserve that Name) are usually twenty-four Feet long, ten or twelve wide, and five or six in height. They are row'd by two Watermen, whilst a third is employ'd in wetting the *Borachios* every Quarter of an Hour, which otherwise would squat and sink. They have neither Mast, Sail, nor Rudder; and yet if they wanted Wind, as M. *Thevenot* pleasantly observes, they would soon sink to the Bottom.

THE same Traveller, speaking of the excessive Heats at *Mosul* in Summer, takes occasion to mention a very dangerous burning Wind, call'd *Samiel* by the *Arabs*, and which he supposes to be the East Wind we read of in the Book of *Job*. It is mix'd with Streaks of Fire as small as a Hair, and frequently proves fatal to Travellers; for those that breathe it either instantly

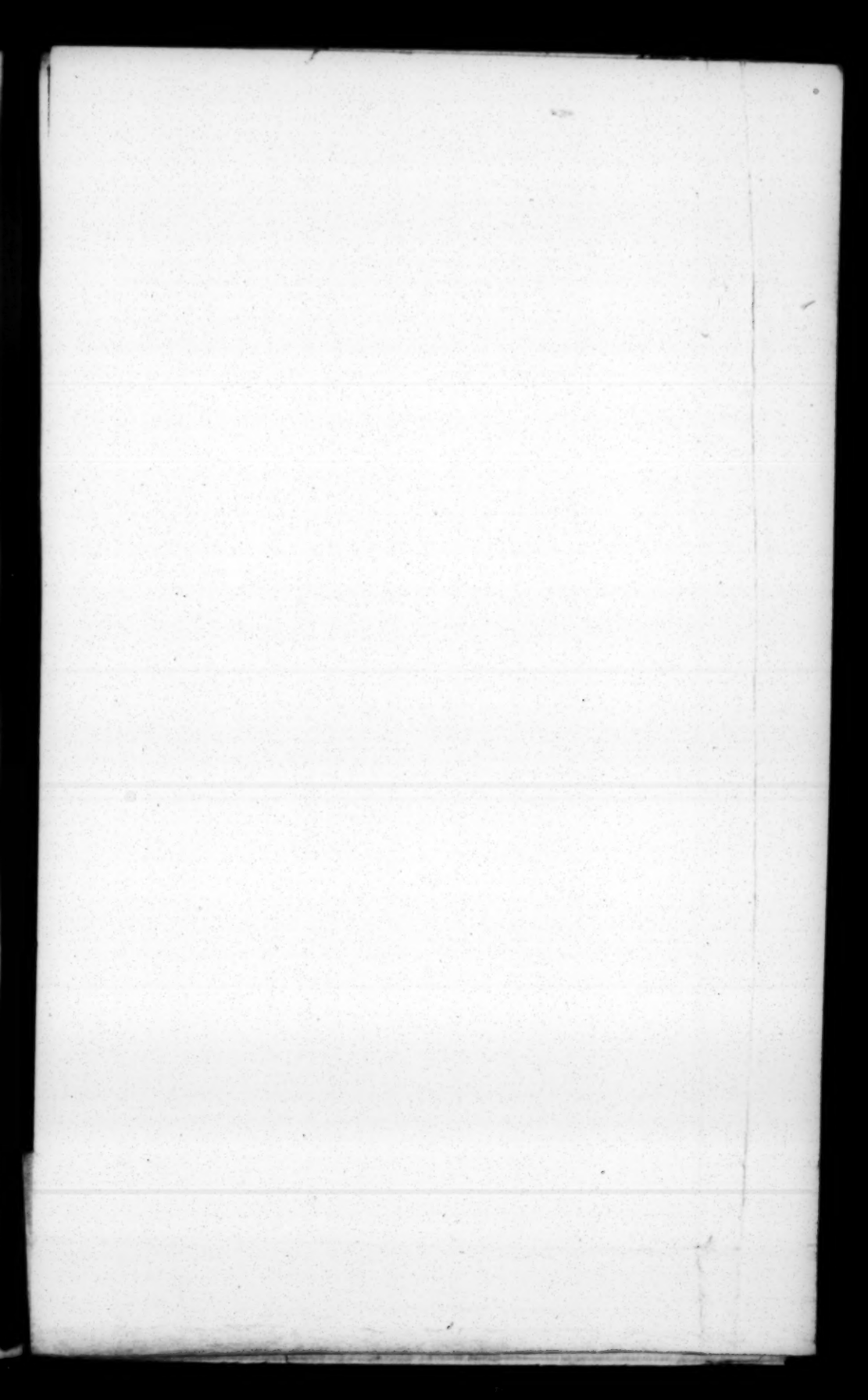
stantly die, or have but just Time to complain of an inward Burning. When they are taken up, they are as black as a Coal, and their Flesh comes off from the Bones; but those who perceive it coming sometimes escape the Danger by falling flat on the Ground. Our Author imagines it to proceed from sulphureous Exhalations, which are kindled by the Motion of the Air; for it is chiefly felt on the Banks of the River, and not on the Water, these Vapours being there dispersed by the Breezes. Nor is this the only Wind, though indeed the most dangerous of any, that infests the Inhabitants of this City and Climate. The very hot Air is pernicious, not only to the Lungs and Blood, but to the very Skin, which is often burnt, blister'd, and stripp'd off by it in a surprizing Manner. The Eyes are so much endanger'd by it, that they are forced to travel with a Kind of soft black Crape over them; but as this does not always preserve them, they carry about them an efficacious Remedy to anoint their Eyes whenever they begin to be inflamed. — Our Author likewise relates, that in his Journey from *Suez* to *Cairo* he was annoy'd with one of these hot Winds, which lasted for a Day together; and that the Caravan travelling to *Mecca* was so infested by one the Year before, that in a Night's Time they lost two Thousand Men.

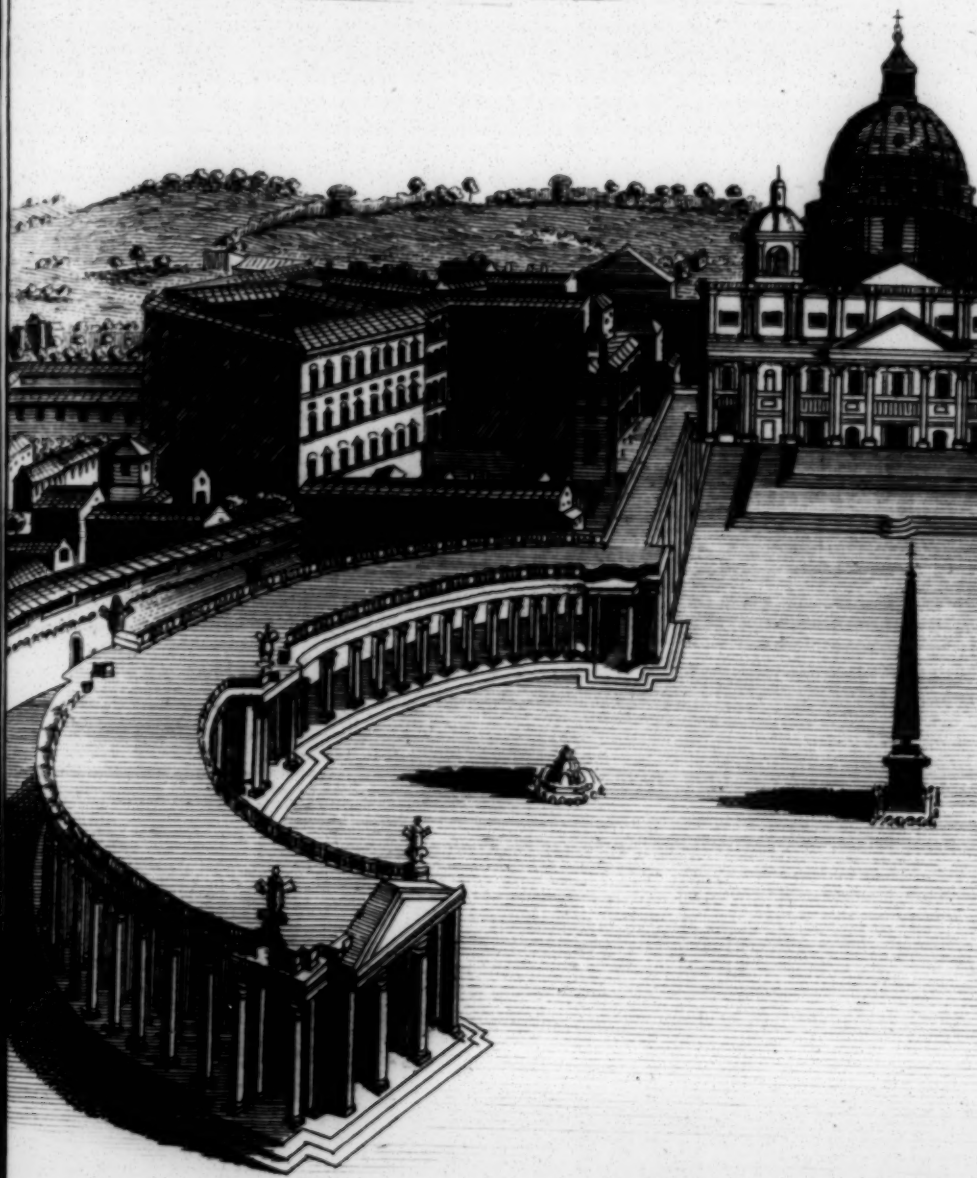
THE Description M. *Tournefort* gives of the famous Mount *Ararat* will perhaps be agreeable to the Reader. The Ascent to it (according

ing to that Traveller, who took the Pains to climb it) is not only very difficult and fatiguing, but also dangerous, through the Ruggedness of some Parts, and the deep Sands of others. The horrid Precipices one is obliged to pass cannot be beheld without Horror, even by the Guides themselves, to say nothing of the Danger of being devour'd by Beasts of Prey. Neither is there any Hermitage, Monastery, or other Place of Refreshment by the Way, as some Travellers have talk'd; for our Author assures us, he neither met with any, nor, upon enquiring of his Guides, could he learn there were any such, except two or three at the Bottom of the Mountain. It rises to a prodigious Height, and may be seen (according to *Tavernier*) at the Distance of five Days Journey. The *Armenians* pay a great Veneration to it, and pretend to shew some Remains of the Ark, still preserved from Corruption. The upper Part of this vast Mountain, says *M. Tournefort*, is continually cover'd with Snow, which in all Likelihood has lain there ever since the Flood; and is, for one Half of the Year at least, quite hid with Clouds, which obscure it from our Sight.

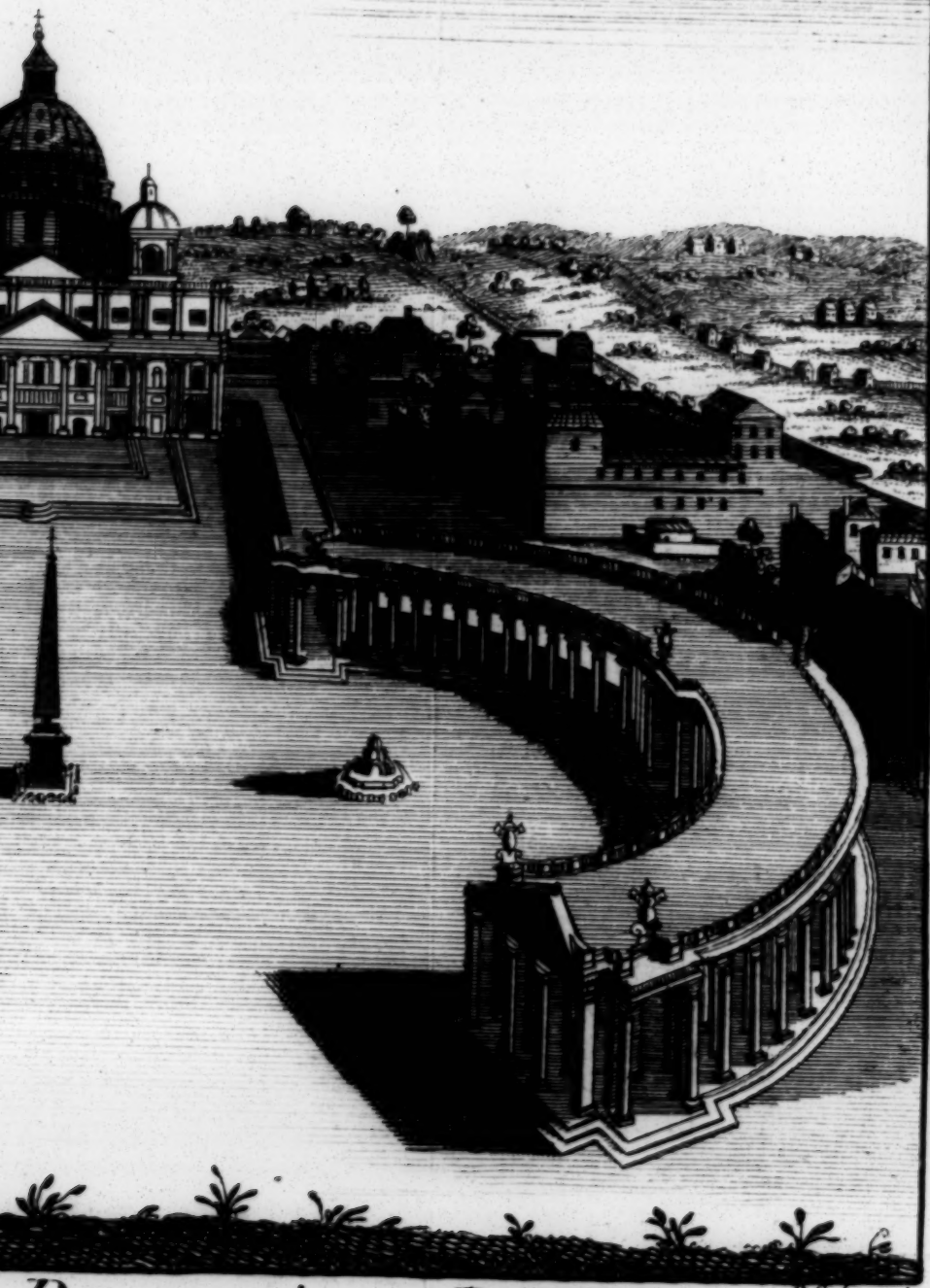
ANTIQUITIES.

THE Subject we are entring upon is a very copious one, and would itself afford Matter for several Volumes; which therefore we shall endeavour to handle with Brevity, and yet as fully as the Nature of our Design requires. No Part of the World indeed abounds more with the Remains of Antiquity than the *Asiatic* Dominions of the *Turks*, and especially *Anatolia*, or *Asia Minor*, which has been famous both in Sacred and Profane History for its great and opulent Cities, most whereof are now in Ruins, or dwindled to inconsiderable Villages. Even the Place of the celebrated *Troy*, so remarkable for its ten Years Siege and Destruction by the *Greeks*, is now only known by vast Heaps of Fragments, of which Sir *George Wheeler* gives us the following Account. The first Thing he observ'd as he approach'd this ruin'd City was abundance of Marble Pillars, Parts of Walls and Foundations along the Shore, but none standing upright nor whole, and many of them lying in the Sea, and scaled by the Weather and the Saltness of the Water. A little farther is the Mole of a Port yet remaining, with a thick Wall on the Shore, which doubtless was beautified with those many Marble-Pillars that lie broken underneath it. Above this Port are several Marble-Tombs, some with the Head of *Apollo* on them, and others with Bucklers,





The West-end of S.^t PE



PETER'S at ROME.

B. Cole sculp.

Bucklers, but without any Inscriptions. They are so like those *Roman* Tombs still to be seen at *Arles* in *Provence*, that *M. Spon* judged they could not belong to the ancient *Trojans*, as *Petro della Valle* imagined. Southward from the Port lay two Pillars on the Ground, each thirty Feet in Length, and a third of thirty-five Feet, of *Egyptian* Granite; but many of these noble Remains have been carried away to build the new Mosques at *Constantinople*, as we have elsewhere intimated. Beyond these we meet with the Ruins of an Aqueduct, and at a little Distance from thence a Ditch or Canal, narrow and deep, but now dry, being visibly the Work of Art, and supposed to have been made to convey Boats to the City. Something higher than this Channel are found very considerable Remains, such as those of a Theatre, the Foundations of Temples and Palaces, and Part of a small round Temple still standing with a Marble Cornice within, and near it some Pedestals with Inscriptions, which shew these Antiquities to be of the *Roman* Kind, when *Troy* became one of their Colonies.—On the Top of an easy Hill, our Countryman just mention'd observ'd the Ruins of a most stately Building; but what it has been, whether Castle, Temple, or Christian Church, is not easy to determine. The whole Length of it is about four hundred Feet, and its Breadth two hundred and twenty. The Country-People have still a Tradition that it was King *Priam's* Palace.

lace, but our Author could not judge it to be older than some of the first *Roman* Emperors, any more than the other Ruins.

It is a melancholy Thing to see *Ephesus*, formerly one of the most flourishing Cities of *Asia*, now reduced to a miserable Village, remarkable for nothing but the Ruins that are spread round it, which sufficiently testify its ancient Magnificence. As we go to the Port, which at present is only a dangerous Road for Shipping, we see abundance of old Marbles on the Banks of the River, where probably stood that Part of *Ephesus* built by *Lyfimachus*, and the Arsenals mention'd by *Strabo*. The Castle or Citadel now possess'd by the *Turks* seems to be of no older Date than the Times of the later *Greek* Emperors, several curious Fragments of antique Marble being carelessly intermix'd in the Walls among other less valuable Materials. But at some Distance from hence we see the Remains of another Citadel, of greater Antiquity, whose Works were faced with the finest Marble. A Gate of this Structure is still standing, call'd the *Gate of the Persecution*, but for what Reason cannot well be imagined; unless some might suppose the three Bass-Reliefs it is adorn'd with, related to the Persecution of the primitive Christians under the *Roman* Emperors. These Bass-Reliefs, of which M. *Tournefort* has given us a Draught, are of admirable Workmanship, as plainly appears, notwithstanding they are much injured and defaced. That on the
the

the Left has been the finest, but is most abused; it is about five Feet in Length, and half that Height, representing a Bacchanal of Children rolling among Vine-Branches. The middle one is a Foot higher, and contains fourteen or fifteen Figures of Men and Women, some naked, and others in *Roman Habits*. The other on the Right contains seven or eight Figures; but what the whole Sculpture was intended to represent, we do not find that Antiquaries can determine, though there is most Reason to think it was design'd for some *Roman Triumph*.—Eastward from the *Gate of Persecution* we come to a ruin'd Aqueduct, built by the *Greek Emperors* to convey Water to the Castle as well as the City, the Arches whereof are supported by square Pillars, consisting of fine Pieces of Marble, with several Inscriptions on them, few of which are legible.—On the West Side of the Village lie vast Heaps of Ruins, one of which, from its Figure and Length, must have been a *Circus* or *Stadium*, and seems to have had a Sort of Theatre at the End of it, separated from the two parallel Walls; and at a little Distance are the Remains of an Amphitheatre*. South-West of the *Circus* is a large Arch or

* Here probably (as Sir *Danger* from *St. Paul's* *George Wheler* observes) the Rabble of the City assembled at the Instigation of *Demetrius* the Silver-Smith, preaching against the Idolatry of the *Ephesians*, as may be seen in *Acts* xix, from Verse 24. to the End of the Chapter.

Gate, with Part of a Wall standing on each Side of it, supposed to be the Front of a Christian Church, built out of the Ruins of some ancient Edifice, the Whole being of excellent Marble, on which are to be seen some Pieces of Inscriptions.—As to the celebrated Temple of *Diana*, who was worshipp'd by the *Ephefians*, we are inform'd by History that it was four hundred and twenty-five Feet in Length, and two hundred and twenty in Breadth, erected at the Expence of the most powerful Cities of *Asia Minor*. It was supported by a hundred and twenty-seven Columns, each sixty Feet high, and many of them cover'd with curious Sculptures, done by the most excellent Artists of those Times. This superb Structure was reckon'd one of the Wonders of the World, and some say it was two hundred Years in building; but it was much sooner destroy'd by the villainous Ambition of *Herostratus*, who, to immortalize his Name, set Fire to it on the very Night that *Alexander* the Great was born. It was afterwards rebuilt with the utmost Magnificence, but little is to be judg'd of it from its present Ruins, which are vast Heaps of Brick cover'd with Marble, all pierced with Holes for the Cramps of those Plates of Brass with which it is thought to have been adorn'd. It appears indeed to have been built upon a Multitude of Arches or Vaults, which some have taken for a Labyrinth; but they are nothing else but Drains to carry off the Water that fell
from

from the Mountains, the marshy Ground requiring a Foundation of that Nature for so vast an Edifice.

SARDIS, another of the seven Churches mention'd in the *Apocalypse*, and once the Royal Seat of the rich King *Cræsus*, is now reduced (says Sir *George Wheeler*) to a Nest of worse than Beggars, the few *Greek* Christians in the Place being obliged to get a Livelihood by digging and planting the Gardens of the *Turks*, having neither Church nor Priest amongst them. Nor are the *Turks* themselves there very considerable either for Number or Riches, being only Herdsmen to the Cattle feeding on the neighbouring Plains, and dwelling in pitiful Huts of Earth, having one Mosque, perverted to that Use from a Christian Church. Their *Pastolus* (continues our Author) hath long since ceased to yield them Gold, and the Heavens to recover them their dying Glories: Yet there are still to be seen some noble Remains, from whence one may form an Idea of its ancient Splendor and Magnificence. Some of the most considerable are the Walls of an old Castle standing on a Hill, to the Eastward of which are the Ruins of a Church and of another vast Edifice; and on the North and South Sides are the Fragments of Palaces and other proud Structures, now demolish'd and humbled to the Ground*.

* Here it may not be a- dern Author, that of all the
miss to observe, with a mo- seven Churches of *Asia*,

A Person who delights in Antiquities will find great Entertainment at *Angora*, formerly *Ancyra*, which is still one of the best Cities in *Anatolia*, and every where shews Marks of its ancient Magnificence. There is nothing to be seen in the Streets, says M. *Tournefort*, but Pillars and old Marbles, amongst which there is a Species of reddish Porphyry, and of red and white Jasper. Most of the Pillars are smooth and cylindrical; some are channell'd spirally; but the most singular are oval, adorn'd with a Plat-band before and behind, which also runs along the Pedestal and the Capital. Our Author has given us a Draught of one of these Columns, as he thought them beautiful, and

none but that of *Smyrna* retains its Reputation, for they reckon in that City at least ten thousand *Greeks*, besides several hundred *Armenians* and other Christians. The other Cities, that St. *John* was commanded to write to, are now either entirely ruin'd, or make a despicable Appearance. That of *Sardis*, which made such a Figure in the Wars between the *Persians* and *Grecians*; *Pergamus*, the Capital of a fine Kingdom; and *Ephesus*, which gloried in being the Metropolis of *Asia Minor*;

these three famous Cities are now obscure inconsiderable Villages, built with Clay and Fragments of fine Marble, the Remains of their pristine Grandeur. *Philadelphia* indeed, next to *Smyrna*, is in the best Condition, having (according to Dr. *Smith*) above two hundred Houses inhabited by Christians, and four Churches; whereas the Places of *Thyatira* and *Laodicea* are scarce known, unless by some Inscriptions found among their Ruins.

that

that no Architect had spoken of such an Order. As for the modern Buildings, they are mostly of Clay or Turf, now and then intermix'd with some fine Pieces of Marble. The Walls of the City are low, and consist of Columns, Architraves, Capitals, and other ancient Fragments promiscuously mingled with the rest of the Stone-Work. On these old Pieces of Marble are to be seen a great Number of Inscriptions, most in *Greek*, but some in other Languages; several of which M. *Tournefort* has copied, and many more are turn'd inwards and hid in the Wall, through the careless Ignorance of the Builders.—The Castle of *Angora* is surrounded with a triple Inclosure, and the Walls are of large Pieces of white Marble, mix'd with another Stone not unlike Porphyry. Within the first Inclosure there is a little *Armenian* Church, said to have been built twelve hundred Years ago, which receives all the dim Light it has through a square Piece of Alabaster, of that transparent Kind we have heretofore described*. This Part of the Castle is full of Pedestals and Inscriptions, and indeed every Part of *Angora* so abounds with them, that an Antiquary might employ a whole Year in transcribing them. The Church-yard belonging to the Christians has such a Store of *Greek* and *Latin* Inscriptions, that it can never be exhausted; but the greatest Part of them are Epitaphs of Persons about

* See p. 226. of this Volume.

whom we are not concern'd*.—The learned *French Traveller* above-mention'd has also given us a Draught of the Remains of a noble Structure at *Angora*, which he calls the *Monument of Augustus*, as having probably been dedicated to that Emperor by the Inhabitants, in Acknowledgment of his repairing and beautifying that City. It appears to have been all of white Marble, and some of the Walls are still above thirty Feet high. The Front is entirely destroy'd, only a stately Door remains, which is four and twenty Feet high, and full three Yards wide; on the Sides whereof is a defaced Inscription in three Columns, relating to the Life of *Augustus*, which is to be found in *Gronovius*, *Clusius*, and other Authors. The Injury this Inscription has receiv'd is not so much occasion'd by Length of Time, as by the Avarice of the Peasants, who have made great Hollows

* *M. Tournefort*, who has copied many of the ancient Inscriptions he saw at *Angora*; has also transcribed two modern Epitaphs he observ'd in the Church-yard of the Christians, which, as they relate to Natives of *Great Britain*, we think proper to mention. They are in *Latin*, and to the following Effect: *Here lies interr'd John Roos, a Scotchman, who died at Angora the 22d Day of June,*

in the Year of our Lord 1668, and the thirty fifth of his Age. What is my Lot to-day, may be thine to-morrow.—The other is equally plain, and to this Purpose: *Here lies Samuel Farrington, an Englishman, Son of Acidwall Farrington a Merchant of London, who slept in Christ in the twenty-third Year of his Age, and of our Redemption 1660.*

in the Stones, to get out the Pieces of Copper by which they were cramp'd together. What particular Use this Building was put to is uncertain; perhaps it was design'd for the Feasts at the Publick Games, though *Busbequius* rather thinks it was a *Prætorium*; however, our Author is positive it was not a Temple.

IN the Neighbourhood of *Cæsarea* in *Cappadocia* there are many ancient Structures, some in Form of a Tower and terminating with a Cupola, others like a Pyramid or Sugar-Loaf, but all of them of fine square Stones, supposed to have been *Persian* Tombs, as the Inside of them is divided into two, three, or more Vaults, with several *Persic* Inscriptions. At the Foot of a Mountain, on which the old City stood, its Ruins are still to be seen; and here Sir *Paul Lucas* was shewn a Vault, in which they told him forty Virgin-Martyrs were buried, but when or who they were he could not learn. However, there being an Opening big enough for a middle-siz'd Man to creep through, his Curiosity led him to examine it; and he accordingly found it full of Bodies broken and lying in a confused Manner, with the Flesh upon them, but dried and harden'd. There are many more such Vaults or Catacombs among these Ruins, which need no farther Description.

FROM *Anatolia* let us now pass on to *Syria*, which in its largest Sense comprehends *Phœnicia* and *Palestine*; and these Countries we shall like-

likewise find overspread with the Ruins of once flourishing Cities, whilst the Soil, in many Places rich and fertile, and productive of every thing that can be wish'd for Use or Delight, lies waste and uncultivated. But all *Syria*, nor perhaps the whole World, does not afford a View of more magnificent Ruins than those of *Palmyra* or *Tadmor*, which evidently demonstrate its ancient Opulence and Grandeur. This City was founded by King *Solomon* in the Desert of *Syria* *; but it may be supposed (as Mr. *Halley* observes) that so advanced a Garrison as this, being above three hundred Miles from *Jerusalem*, did not continue long in Possession of the *Jews*, who after *Solomon's* Death fell into civil Diffensions. It undoubtedly submitted to the *Babylonian* and *Persian* Monarchies, and afterwards to the *Macedonians* under *Alexander* and the *Seleucidæ*: But when the *Romans* got Footing in those Parts, and the *Partians* seem'd to put a Stop to their farther Conquests in the East, then this City, by reason of its Situation, (being a Frontier Town, and in the Middle of a vast sandy Desert, where Armies could not well subsist to reduce it by Force) was courted and caress'd by the contending Princes, and permitted to continue a free State, a Mart or Staple of Trade for the Convenience of both Empires, as plainly appears from *Ap-*

* See 1 *Kings*, ix. 18. and 2 *Chron.* viii. 4. and also *Josephus*.

pian and *Pliny*. With these Advantages of Freedom, Neutrality, and Trade, for near two Centuries, *Palmyra* grew wealthy and magnificent, and it was afterwards much adorn'd and enrich'd by the Emperor *Adrian*, to whom it submitted about the Year of *Christ* 130. From the Time of *Adrian* to that of *Aurelian*, for about a hundred and forty Years, this City continued to increase in Power and Riches, till *Zenobia*, the Wife of *Odenatus*, and Queen of *Palmyra*, (as she is commonly call'd) having some Dispute with *Aurelian*, after her Husband's Death, about a Share in the Empire, he march'd against her, and having in two Battles routed her Forces, he shut her up and besieged her in *Palmyra*. The City was soon obliged to surrender, and *Zenobia* flying with her Son was pursued and taken; with which *Aurelian* being satisfied, he spared the City, and, leaving a small Garrison in it, march'd to *Rome* with this captive Lady: But the Inhabitants, being willing to shake off the *Roman* Yoke, cut off the whole Garrison; which *Aurelian* understanding, though he was got into *Europe*, return'd speedily with his Army, took the City again without much Opposition, put the People to the Sword with uncommon Cruelty, and deliver'd it to be pillaged by his Soldiers. This Calamity befel *Palmyra* about the Year of our Lord 272; and though *Aurelian* did not then burn or destroy the Buildings, yet the Damage it sustain'd was never retriev'd, so as to make any

considerable Figure ever after. To say in what Age, or from what Hand, it receiv'd its final Overthrow, which reduced it to the miserable Condition it now appears in, we have no Light from History; but it was probably burnt and desolated in the obscure Ages of the World, during the Wars of the *Saracens*.—This short History of *Palmyra*, previous to an Account of its Ruins, though a Sort of Deviation from our Design, we believe will not be disagreeable to our Readers.

THESE Ruins lie in the Desert of *Syria*, about a hundred and fifty Miles S. S. E. of *Aleppo*, and have been visited by several of our Countrymen, particularly Mr. *Halifax*, who has carefully examin'd and fully described them. By the Space they take up, the City appears to have been of a vast Extent; but there are no Footsteps of any Walls remaining, nor is it possible to judge of the ancient Figure of the Place. The present Inhabitants are about thirty or forty poor Families, who live in little Huts made of Earth, within the Wall of a spacious Court, which formerly inclosed a most magnificent Heathen Temple. This Court is a Square of 220 Yards each Side, encompass'd with a high and stately Wall, adorn'd with Pilasters both within and without, to the Number of sixty-two on a Side; and had not the *Turks*, out of a vain Superstition, purposely beat down the beautiful Corniches, perhaps the World could not boast of more exquisite Carvings,

wings, as one may judge from some remaining Fragments. The West Side, on which is the Entrance, is mostly broken down, and near the Middle of the Square another higher Wall is raised out of the Ruins, which appears to have been Part of a Castle, probably built by the *Mamalukes** for the Security of the Place. Before the whole Length of this new Front, except a narrow Passage left for an Entry, there is cut a deep Ditch, faced with Stone to the Foot of the Wall, which must have made it difficult to be assaulted. This Wall quite shrouds the magnificent Entry that belong'd to the first Fabrick, of the Stateliness whereof we may form some Idea from the two Stones that support the Sides of the great Gate, each of which is thirty-five Feet high, both standing and in their Places, and beautifully carv'd with Vines and Clusters of Grapes, exceedingly bold and natural. As soon as we enter within the

* Authors are not agreed as to the Origin of the *Mamalukes*. Some say that the victorious *Saladin*, Sultan of *Egypt*, establish'd a Body of Troops in that Country, somewhat like the present *Janizaries*, consisting of Prisoners taken in War or purchased of the *Tartars*, to whom he gave the Name of *Mamalukes*, or Slaves, for that is the Meaning of the

Word. Be this as it will, these *Mamalukes*, about the Middle of the thirteenth Century, dispossest the Posterity of *Saladin*, and usurp'd the Government. They were engaged in continual Wars against the Christians of *Syria* and *Palestine*, till they had entirely deprived them of their Possessions in those Countries.

Court, we see the Remains of two Rows of very noble Marble Pillars, thirty-seven Feet high, with Capitals of admirable Workmanship. About fifty of these only remain entire; but there must have been a great many more, for they appear to have run quite round the whole Court, and to have supported a very spacious double Piazza or Cloyster. The Walks on the West Side of this Piazza, which is opposite to the Front of the Temple, seems to have exceeded the rest in Breadth and Beauty; and at each End thereof are two Niches for Statues at their full Length, with their Pedestals, Borders, Supporters and Canopies, all carv'd with the greatest Art and Curiosity. In the Middle of this once beautiful Inclosure, now fill'd with the dirty Huts of the Inhabitants, stood the Temple, encompass'd with another Row of Pillars of a different Order, and much taller than the former, being about fifty Feet high, of which only sixteen are now remaining. The Space included within these Pillars was fifty-nine Yards in Length, and about twenty-eight in Breadth; and the Temple was thirty-three Yards long, and fourteen or fifteen broad, pointing North and South, with a most grand Entry on the West, exactly in the Middle of the Structure. The outward Walls of this Temple are still standing, in which it is observable, that the Windows are narrower at the Top than the Bottom, and not very large, but all adorn'd with excellent Sculptures. Just over
the

the Door one may discern Part of the Wings of a large Spread-Eagle, extending its whole Width; which made Mr. *Halifax* at first imagine it might have been rather a Cherub overshadowing the Entrance, there being nothing of the Body remaining to guide one's Judgment; but afterwards, seeing other Eagles on Stones that were fallen down, he concluded this must have been one likewise, only of a much larger Size. Never were Vines, Bunches of Grapes, and the other Sculptures in general, done in so bold and lively a Manner; and every thing to be seen about the small Remains of this Temple induces us to believe it was once a most glorious Structure. The *Turks*, or rather the *Mamalukes*, have built a Roof to these Walls, supported by small Pillars and Arches, but a great deal lower and in other Respects disproportionate to what the ancient Covering must have been; and they have converted it into a Mosque, adding to the South End thereof new Ornaments after their Manner, with Inscriptions and Sentences out of the *Koran*, written prettily enough in Wreaths and Flourishes; but at the North End of the Building, which makes no Part of the Mosque, there are Remains of much greater Art and Beauty, viz. the most curious Fret-work and Carvings. In the Middle of the Roof there is a Dome or Cupola, about two Yards in Diameter, consisting of one entire Stone, or else made of some artificial Compo-

sition, which however is an admirable Piece of Workmanship.

AFTER viewing this Temple, our Author went to another Situation, where he had a Prospect of such stately Ruins, that if one may frame an Idea of the original Beauty of *Palmyra* by what is still remaining, it may be question'd whether any City in the World could have vied with it in Magnificence. Advancing towards the North, we have before us a fine Obelisk about fifty Feet in Height, consisting of seven large Stones, besides its Capital and the wreath'd Work about it. Its Circumference just above the Pedestal is four Yards six Inches, and its Sculptures, as in other Places, are extremely beautiful; but it has no Statue on the Top of it, as probably it had formerly. About a Quarter of a Mile distant from this, two other large Pillars are to be seen, the one towards the East, and the other towards the West; which would incline one to think there was once a continued Row of them.—Proceeding directly forwards about fourscore Yards from the Obelisk, we come to a large and lofty Entry, which for the Beauty of the Workmanship is not inferior to any thing before described, and leads into a noble Piazza or Portico, above half a Mile in Length and forty in Breadth, inclosed with two Rows of stately Marble Pillars, twenty-six Feet in Height, and eight or nine in Circumference. One hundred and twenty-nine of these

these are standing and entire, but upon a moderate Computation there could not have been less originally than five hundred and sixty*. This spacious Piazza was terminated by a Row of Pillars standing somewhat closer than those on the Sides; and perhaps there might be a Sort of Banqueting-House above, or else a stately Building, whose Ruins lie at a little Distance to the Left, might have been allotted to that Use, being built of finer Marble, and having an Air of Delicacy in the Workmanship beyond what is discernible in the Piazza. The Pillars that supported it are of one entire Stone; and one of them, that was fallen down without breaking, measured twenty-two Feet in Length, and eight Feet nine Inches in Circumference. On the West Side of the great Piazza are several Gates leading into the Court of the Palace, two of which, when in their Perfection, must have been exceeding magnificent and beautiful, not only for the Elegance of the Work in general, but in particular for the noble Porphyry Pillars with which they are adorn'd, each Gate having four in its Front, two on one Hand, and two on the other. There

* It is not unlikely that many of the Marble Pillars which adorn'd *Palmyra*, and particularly those of this Portico, were the Gift of the Emperor *Adrian*, it being

usual with the *Cæsars* to make such Presents to Cities that had obliged them, as this had done by declaring for the *Romans*.

is only one of these now standing in its Place, though there is another remaining entire; they are about thirty Feet high, and nine in Compass, and so exceeding hard that a Piece cannot be broken off without great Difficulty*. The Palace itself is so entirely ruin'd, that no Judgment can be form'd what it was when standing, either as to its Figure or Workmanship; but no doubt it was answerable to the Splendor of the City.

On the East Side of the long Piazza stands a vast Number of Marble Pillars, some perfect, and others deprived of their beautiful Capitals, but so scatter'd and confused, that it is not possible to reduce them to any Order, so as conjecture to what Purpose they anciently serv'd. In one Place we find several of them ranged in a Square, paved at the Bottom with broad flat Stones; but without any Roof or Covering; and at a little Distance from thence are the Remains of a small Temple, which seems to have been of curious Workmanship, but the Roof

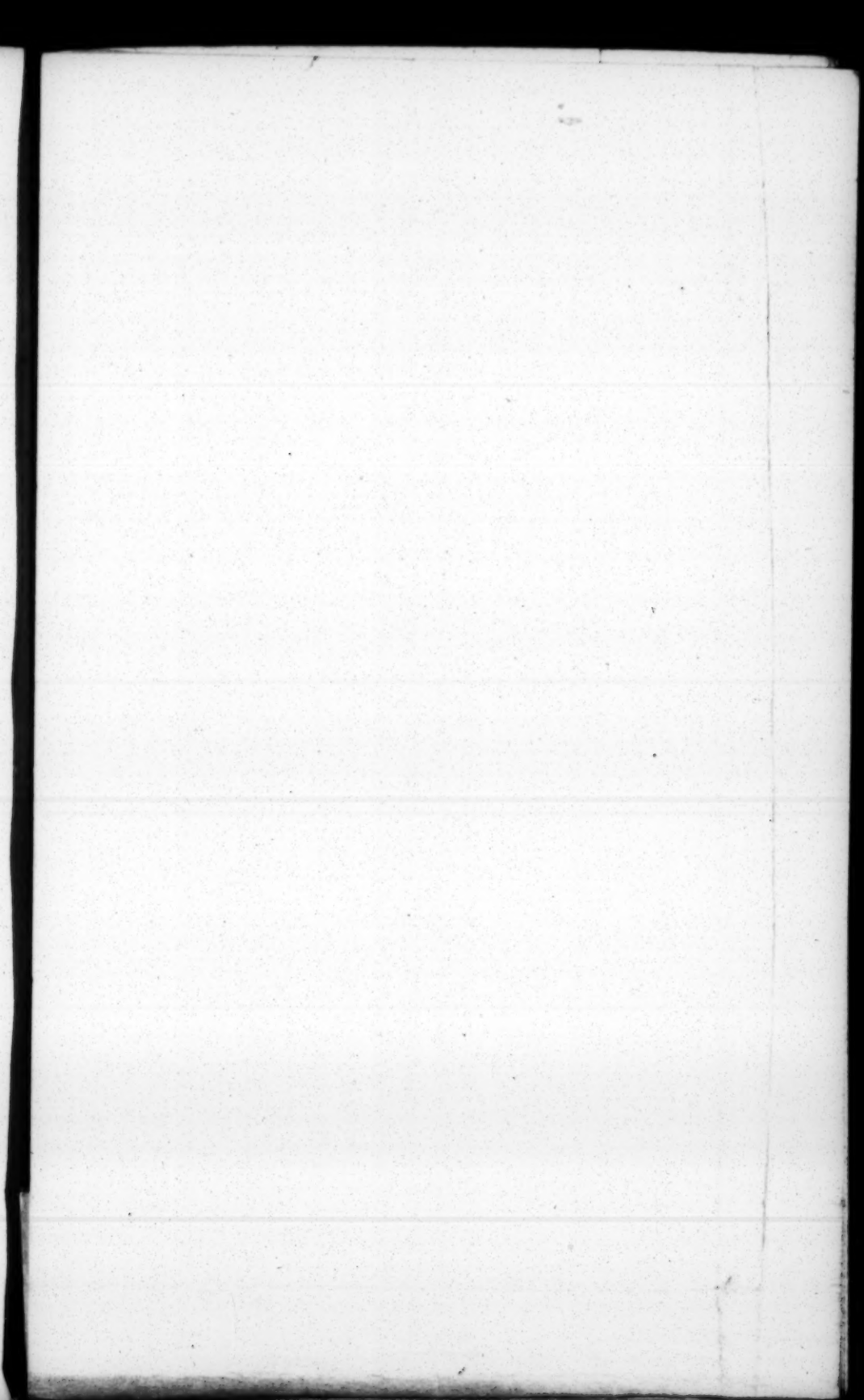
* The Magnitude of these Porphyry Columns is very remarkable, considering how far they must have been brought by Land-Carriage to *Palmyra*, if we suppose no other Quarries of Porphyry were then known but those of *Egypt*. Possibly they might have it nearer,

since it is now found in other Parts of the World. It is a very valuable Marble both for its Colour and Hardness, and because it rises in Blocks of any Magnitude required; so that Mr. *Halifax* is strangely mistaken to suppose it factitious.

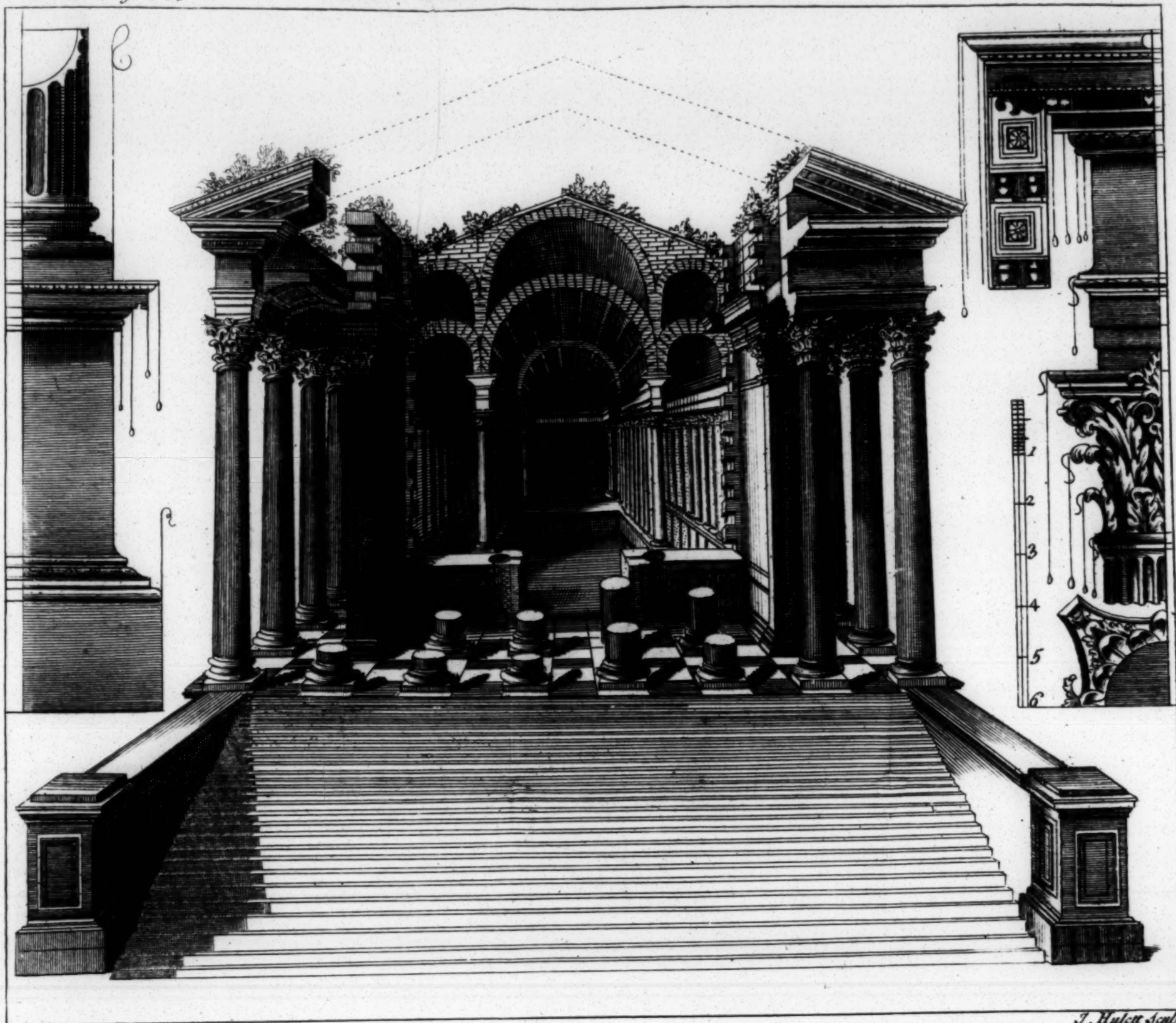
is quite gone, and the Walls are much defaced and consumed. Before the Gate of it there remains a Piazza supported by six Pillars, two on each Side of the Door, and one at each End; and the Pedestals of those in the Front have been fill'd with Inscriptions, which are now defaced and illegible.

THE Sepulchres of *Palmyra* are worth the Notice of the Curious, being square Towers four or five Stories high, standing on each Side of a hollow Way towards the North Part of the City. They extend in Length the Space of a Mile, and perhaps anciently they might stretch a great Way farther. They are all of the same Form, but differ in Magnitude and Splendor, according to the Circumstances of their Founders. Two of these Sepulchres are more entire than the rest, though not without Marks of the *Turkish* Fury, as well as the Injuries of Time. They are rather larger than our common Church-Steeple, and five Stories high, the Outside being of ordinary Stone, but the Partitions and Floors within of good Marble, and adorn'd with lively Sculptures and Paintings, and the Busts of Men and Women, most of them defaced and broken. Under these Busts, or on the Sides of them, are some Inscriptions in an unknown Character, being probably the Names of the Persons there deposited. One of these Sepulchres has a Door on the South Side, from whence there is a Walk cross the Middle of the Building, and the Floor being

being broken up affords a View of the Vault below. The Spaces on each Hand are divided by thick Walls into six Partitions, each capable of receiving the largest Corpse; and if they piled one upon another, as their Method seems to have been, each of those Partitions might contain six or seven Bodies. In the lowest, second, and third Stories these Partitions are uniform, except that from the second Floor one Partition is reserved for a Stair-Case. In the upper Floors, the Building being somewhat contracted towards the Top, there is not Room for a Continuation of the same Method; and therefore the two highest Stories are not so divided, nor perhaps ever had any Bodies laid in them; unless that of the Founder, whose Statue in a cumbent Posture is placed in a Niche, or rather Window, in the Front of the Monument, so as to be seen both within and without; and near this Statue is a *Greek* Inscription, which Mr. *Halifax* has copied. The other Monument is like this, only the Entrance and Front are towards the North, and the Paintings are not so fine; but the Carvings are as good, and the Whole looks as stately as the former. Besides, it has the Advantage with respect to Age, being not so old as the other by a hundred Years; as appears from the Date of an Inscription over a Niche in the Front, doubtless the Place of some Statue, and probably that of the Founder. —From these sumptuous *Mausolea*, and other magnificent Structures, our Author thinks it reason-

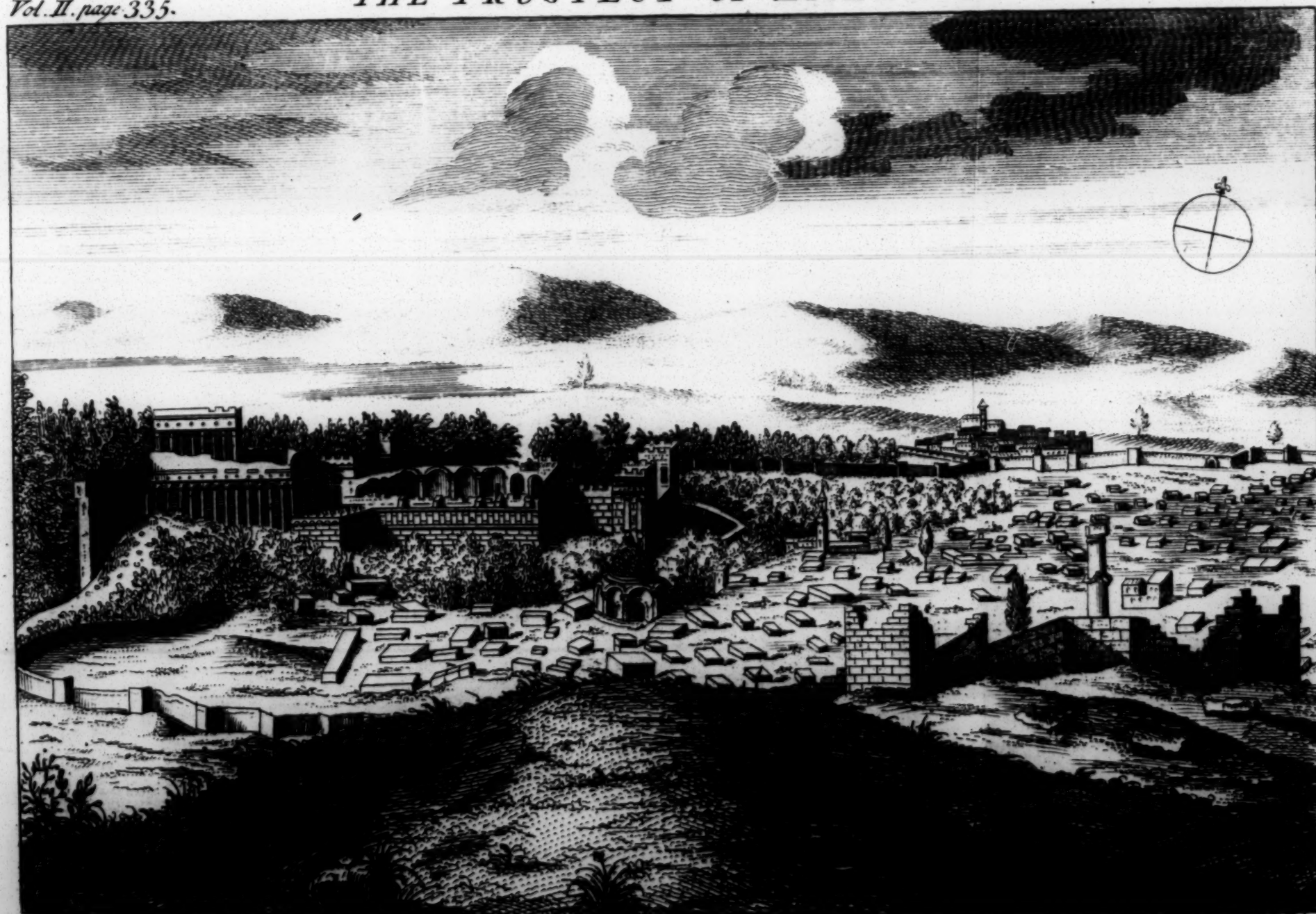


THE TEMPLE AT BALBECK

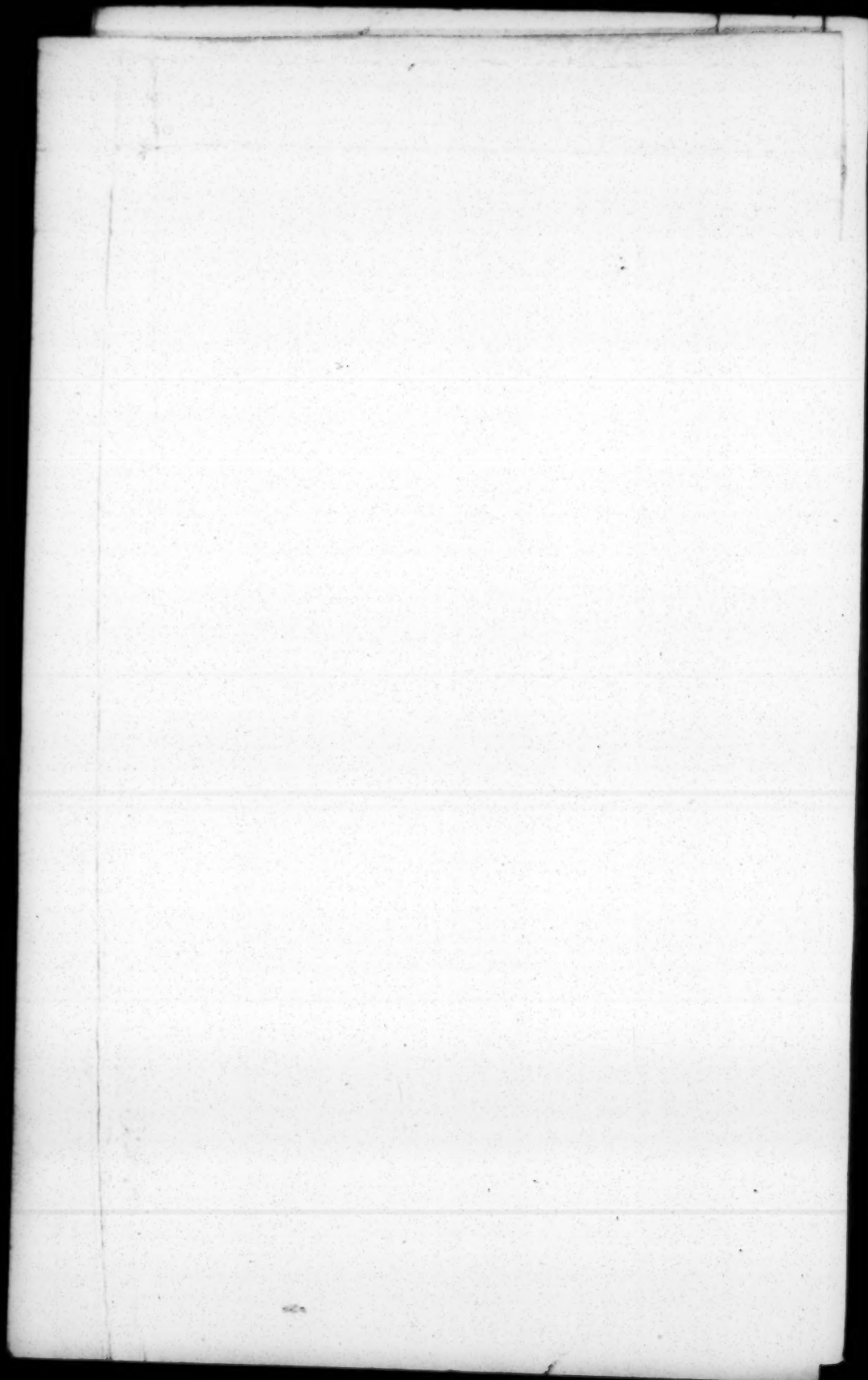


J. Hulst Sculpt.

THE PROSPECT OF BALBECK



J. Hulst Sculpt.



reasonable to conclude, that the *Palmyrenes* were a potent and opulent People before they became subject to the *Romans*, and were not altogether indebted to them for their Greatness.

NEXT to the Ruins of *Palmyra*, there are none which more attract the Attention of Travellers than those to be seen at *Balbeck*, a Town about thirty Miles North of *Damascus*, supposed to be the ancient *Heliopolis*, so call'd from an Image of the Sun which was worshipp'd by its Pagan Inhabitants. The present Town is of a square Form, about a Mile in Compass, surrounded by a Wall of considerable Strength, which has been built out of the Ruins of the ancient City; but the Houses are very mean, such as are usually met with in *Turkish* Villages. On the South-West Side of the Town are the noble Remains of a Heathen Temple, with some other magnificent Buildings; but in later Times these old Structures have been patch'd and pieced, some Additions made to them, and the Whole converted into a Castle. The additional Buildings are in no mean Taste, but yet the modern-Architecture is easily distinguish'd from the ancient.

THE first Thing observable among these venerable Remains of Antiquity, which have been very particularly described by Mr. *Maundrell*, is a *Rotunda*, or round Structure, encompass'd with beautiful Pillars of the *Corinthian* Order, which support an elegant Corniche. Though round on the Outside, it is octogonal within, having

having eight Arches supported by eight *Corinthian* Columns, each of one single Piece. It is mostly of Marble, and is now open at the Top, but appears to have been cover'd with a Shell, and to have been embellish'd with the Figures of Eagles. In a Word, the Whole is very elegant and stately; but the *Greeks*, who venture to use it as a Church, though it is in a tottering Condition, have spoil'd the Beauty of the Inside by daubing it with Plaister.—Leaving this *Rotunda*, we come to a large and lofty File of Building, composed of vast square Stones; and through this we advance into a stately Piazza or Portico, a hundred and fifty Paces in Length, which leads to the Temple above-mention'd. This Temple has surprisingly withstood the Injuries of Time, and escaped the Fury of Superstition, the Body of it being almost entire. It is an oblong Square, and as to its Form and Proportion it very much resembles the Church of *St. Paul, Covent-Garden*, but in Dimensions and other Respects the *Balbeck* Temple is abundantly superior. Its Length, measur'd on the Outside, is a hundred and ninety-two Feet, and its Breadth ninety-six: Within it is a hundred and twenty Feet long, and sixty broad. The *Pro-naos*, or Anti Temple, is tumbled down, the Pillars that supported it being broken. The Body of the Temple is surrounded by a noble Portico, sustain'd by Pillars of the *Corinthian* Order, each of which consists of three Stones, being

being about fifty Feet high, and more than six in Diameter. These Pillars are three Yards distant from each other, and as much from the Wall of the Temple, fourteen of them being on each Side, and eight at the End, reckoning the Corner-Pillars twice over. They have a stately Architrave running round their Capitals, with a Corniche admirably carv'd. The Covering of the Portico consists of large hollow Stones, which form an Arch, extending from the Pillars to the Wall of the Temple; and in the Center of each Stone is the Figure of a Deity, a Hero, or something of that Kind, but most of them so defaced as not to be easily distinguish'd. There is a *Mercury*, indeed, that has receiv'd but little Injury, and an Eagle flying away with *Ganymede**, both carv'd with all the Life imaginable. A continued Bass-Relief in Miniature runs round the Foot of the Wall of the Temple on a Border of Marble, representing divers Ceremonies of the Heathen Worship, in which there is still discernible a surprizing Mixture of Figures both of Men and Beasts, but without the least Confusion.

* *Ganymede*, according to the poetical Fiction, was the Son of *Tros* King of *Troy*, whom *Jupiter* falling in Love with, assum'd the Form of an Eagle, and snatch'd him up as he was

hunting on Mount *Ida*, and made him his Cup-Bearer instead of *Hebe*. This Rape of *Ganymede* is prettily related by *Ovid* in the tenth Book of his *Metamorphoses*.

NOTHING can be more grand than the Entrance into this magnificent Edifice, the Ascent to it being by thirty Steps, bounded on each Side by a Wall, which terminates in a Pedestal, whereon was formerly placed a Statue, as may reasonably be imagined. Eight *Corinthian* Pillars, with a large triangular Pediment, compose the Front; and within these Pillars, at about two Yards Distance, are four others; and also two Pillars of three Faces each, which all together form a Portico before the Door of the Temple, twenty-four Feet in Depth, and upwards of sixty in Breadth. The Door of the Temple appears to the utmost Advantage thro' these Pillars, their nice Proportions, their Distance from each other, and the Recess of the Door itself, all contributing to make it look majestic. The Door-Case or Portal is about forty Feet high, and twenty-eight wide; and, as to Construction and Proportion, resembles the great Portal at the West End of *St. Paul's*, but far excels it in the Richness of its Sculptures. The Bass-Relief over-head when we are under the Portal is an admirable Piece of Sculpture, and, though much injur'd, still discovers inimitable Beauties. It is a vast Eagle with his Wings expanded, carrying a *Caduceus** in his

* The *Caduceus* is *Mercury's* Rod or Wand, entwisted with two Serpents, born by that Deity as the Ensign of his Quality and Office. Wondrous Virtues were attributed to this Rod by the Poets, as that of Talons,

Talons, and holding in his Beak the Strings or Ribbons coming from the Ends of two Festoons, the other Ends being supported by two flying *Fames*; the Whole done in the most exquisite Manner imaginable.

THE Inside of this Temple is divided into three Isles, somewhat like our Churches, the broadest being in the Middle. These were form'd, as may still be discern'd, by two Rows of fluted *Corinthian* Columns, above three Feet in Diameter. Each Row consisted of six Columns, which stood about eighteen Feet distant from each other, and twelve from the Walls of the Temple. All round the Walls we see two Rows or Orders of Pilasters, one above another; and between the Pilasters are tall Niches, that seem to have been design'd for Images. Of these Pilasters there are eight in a Row on each Side, and nine Niches, the Bottoms whereof are upon a Level with the Bases of the Pilasters, and the Wall to that Height is wrought like a *Corinthian* Pedestal, the same Order being very exactly observ'd in the Niches themselves. Near the West End of the middle Isle there is an Ascent of twelve Marble Steps, to a Part of the Temple distinguish'd from the rest by two large square Co-

raising the Dead, throwing People into a Sleep, &c. It was also used by the Ancients as a Symbol of Peace

and Concord. The Rod expresses *Power*, the Serpents *Prudence*, and the Wings *Diligence*.

lums adorn'd with Pilasters, forming a noble Entrance corresponding to that of the Temple itself. This Part (for want of a more proper Name) is call'd the Choir; and it is supposed here was formerly a Partition, and that the two Pillars supported a Canopy. There is a large Marble Niche at the Bottom of this Choir, which was undoubtedly the Place of the principal Idol anciently worshipp'd in this Temple. All round this Part of the Structure there is a vast Profusion of excellent Sculpture; on one Hand, Fruits, Flowers, Festoons, Birds, and the like; on the other, *Neptune, Tritons, Fishes*, and such marine Figures. The Roof the Temple is now destroy'd, but those who have seen it say it was a very bold one, and adorn'd with beautiful Carvings. In short, the Fabrick, as it now appears, strikes us with Astonishment, and gives us the most just Ideas of the Magnificence of the ancient Architecture.

AN old Wall, which encompasses the stately Remains we have been describing, is built with Stones of such a prodigious Size, that those of our famous *Stonehenge* are not to be compared with them; and the Whole is so surprizing and difficult to be accounted for, that the Natives of *Balbeck* (as is usual with the Vulgar in such Cases) believe it to be the Work of the Devil. Three of the largest of these Stones, lying End to End in the Wall, are one hundred and eighty-three Feet in Length, one of them being sixty-three Feet long, and the other two sixty
apiece.

apiece. They are twelve Feet deep, and their Breadth the same; and, what is most astonishing, they are raised up into the Wall above twenty Feet from the Ground. These are the largest that Travellers have taken notice of, but the other Stones of this Wall are of a vast Bigness.

WITHIN this Inclosure, at a small Distance from the Temple above described, we find the Ruins of a stately Palace, as it is supposed to be, of which Mr. *Maundrell* has taken very little Notice. Going through the arched Portico already mention'd, the first Object that engages us is a spacious hexagonal Building or Wall, which forms a Kind of Theatre, being open at one End, where there is a Terrass, to which we ascend by Steps of Marble. This Opening lets us into a square Court, larger than the former, and encompass'd with more magnificent Structures. On each Hand there is a double Row of Pillars, which form Porticos above a hundred and thirty Yards long, and sixteen broad; and at the Bottom of the Court there has been formerly a large and sumptuous Structure, which seems to have been the Body of the Palace, as one may judge by the Columns belonging to this Part, nine whereof are still standing, which are of a vast Size, each consisting of one Stone, and of the *Corinthian* Order*. We cannot behold the remaining

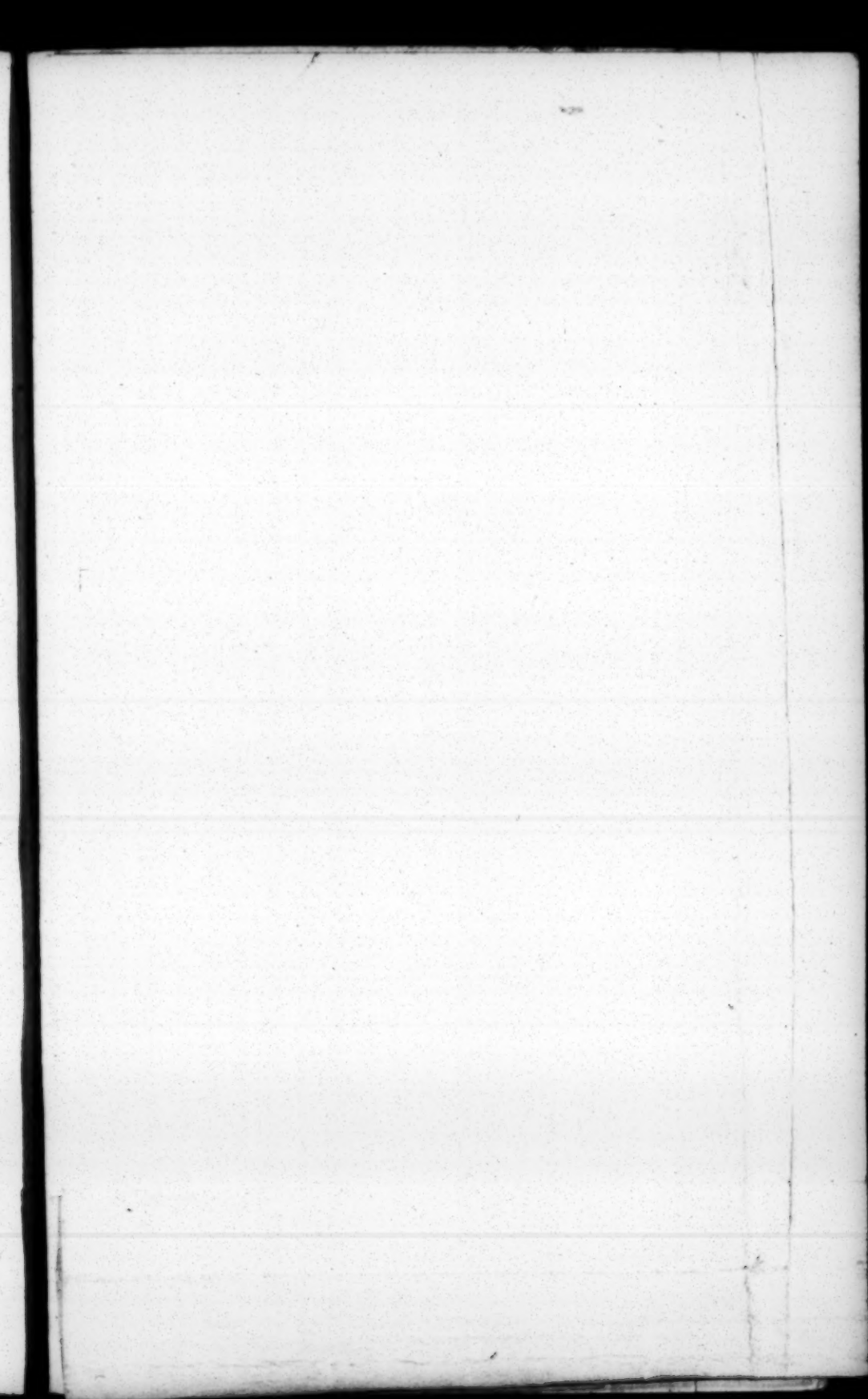
* About fifty Yards distant from the Temple, says Mr. *Maundrell*, is a Row of *Corinthian* Pillars, very Vestiges.

Vestiges of this Palace without Admiration, wherein we see a vast Variety of Ornaments, without any of the extravagant Mixtures introduced in later Ages. Here are Busts and Statues without Number, well-wrought Niches, Trophies, Bass-Reliefs, Incrustations, and, in a Word, so many valuable Remnants of ancient Architecture and Sculpture, as shew the fine Taste of *Greece* and the Magnificence of *Rome* were united in this Palace. The great Vaults underneath it are no less surprizing, for through the Ruins one may discern long Flights of Marble Stairs, some of them containing near two hundred. The bold Turn and Elevation of these Vaults is also wonderful; and the Walls have been adorn'd with Bass-Reliefs and Inscriptions in *Roman* Characters, but the Dampness of the Place and Length of Time have render'd them illegible. Some of the Vaults receive Light from large Windows, that are level with the Surface of the Ground above; but others are quite dark, and cannot be view'd without Torches or Candles, either because of their great Depth, or because the Passages originally made to give them Light are now choak'd with

great and lofty, with a most stately Architrave and Corniche at top: This speaks itself to have been Part of some very august Pile; but what one now sees of it is but just enough to give a

Regret, that there should be no more of it remaining.— And this is all the Account he gives of the Remains of the magnificent Palace we are speaking of, which seems a little surprizing.

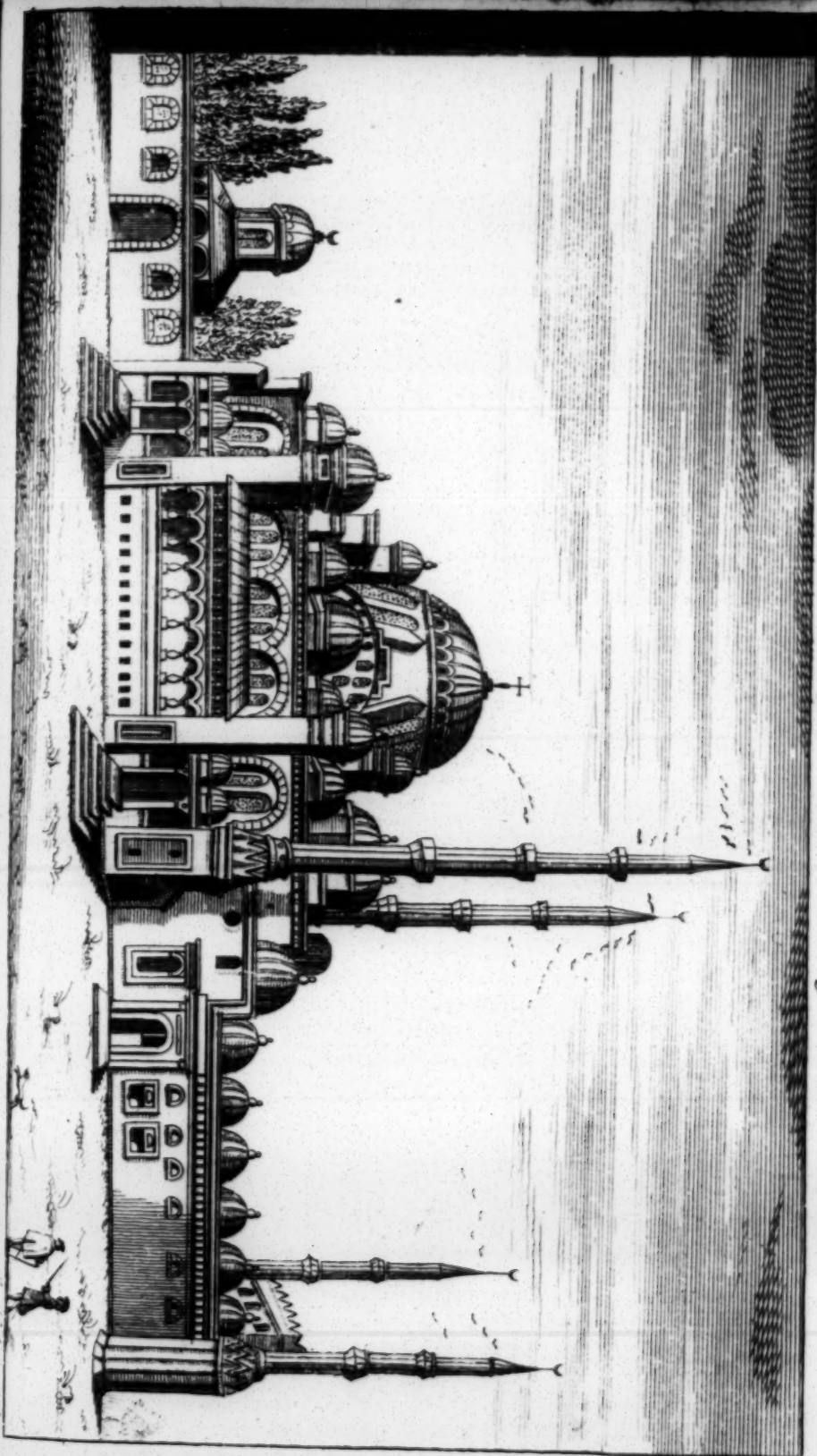
Rubbish.



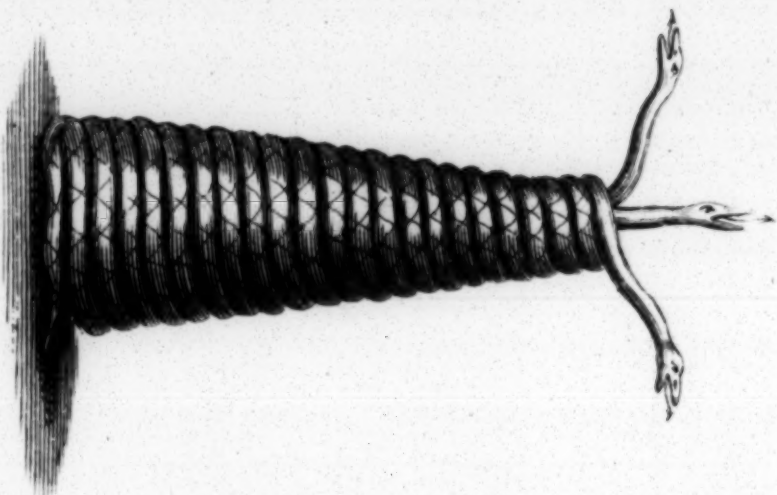
From St. G. Wheler

G. Wheler's

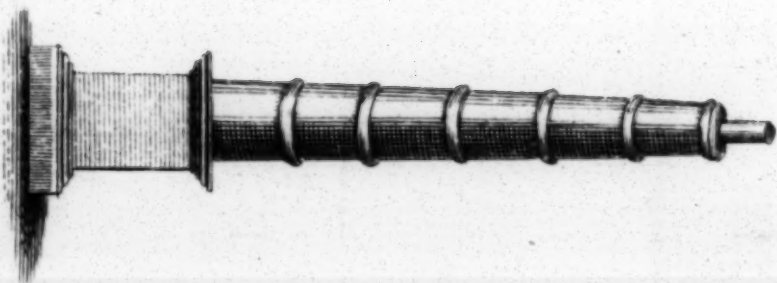
Vol. II. The whole view of the Church of Sancta Sophia from Du Fraine.



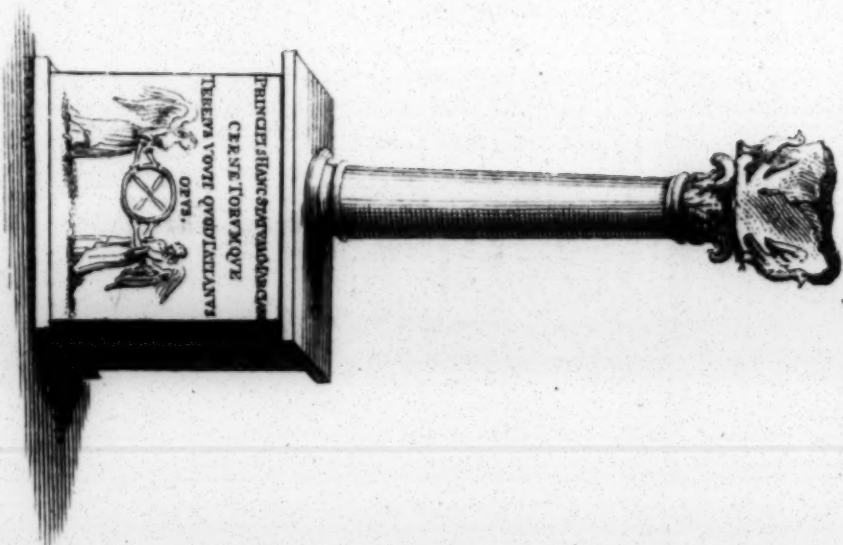
The Serpentine Pillar.



The Porphyry Pillar.



The Pillar of the Emper. Marcian.



Rubbish.—The Temple, and the Remains of this supposed Palace, are within the same Inclosure, as we have intimated already; and these, without mentioning other ancient Fragments to be seen all over *Balbeck* and round about it, may vie with any Monuments of Antiquity now extant in the World.

If we proceed from *Balbeck* to the Sea-Coast of *Syria* and *Phœnicia*, we shall find several Cities that have been famous in History, but have now lost great Part or all of their ancient Splendor, of which the Ruins spread about them are evident Testimonies. *Sidon* in particular, which may properly enough be term'd the Metropolis of *Phœnicia*, as it seems to be the oldest City in that Country, though it be still pretty populous, has lost much of its former Magnificence as well as Extent; which is manifest from the many beautiful Pillars, and other Fragments, that lie scatter'd up and down the Gardens, without the Walls of the present City. Besides these, many curious Antiquities are obscured and buried by the *Turkish* Buildings, but some *Latin* Inscriptions are to be found in the neighbouring Fields and Gardens. The Inhabitants, indeed, pretend to shew a Monument of very ancient Date, even the Tomb of *Zebulun*; which stands in a small Chapel in a Garden, and is had in great Veneration by the *Jews*. It consists only of two Stones, the one supposed to be at the Head, and the other at the Feet of the Deceased; who according to this
must

must have been ten Foot high, for so far the Stones are placed from each other.

THE celebrated City of *Tyre* is another melancholy Instance of the Instability of human Grandeur, which is so far fallen from its ancient State of Magnificence, that it is nothing but a more *Babel* of decay'd and broken Walls, Fragments of Pillars, Pieces of antique Marble, and great Heaps of Rubbish, scarce one House being left entire. There is indeed, on the North Side of it, an old *Turkish* Castle without any Garrison; but if we except this one Structure, the Whole exhibits a dismal Scene of Ruin and Desolation. The Island, on which the City formerly stood, and which was join'd to the Continent by *Alexander* the Great, is but small, and the Foundations of the Walls it was encompass'd with are still to be discern'd. In the midst of the Ruins stands the East End of an old Church, supposed to have been the Cathedral of *Tyre*, which was an Archbishop's See when possess'd by the Christians. Its present Inhabitants are a few poor Fishermen, who shelter themselves in the Vaults and other Parts of the ruinous Buildings, and seem preserv'd there by Divine Providence, (as Mr. *Maundrell* observes) to shew how God has fulfill'd his Threatning denounc'd against *Tyre* by his Prophet *Ezekiel* *.

* One Part of this Threatning was, that *Tyre* should be like the Top of a Rock, a Place
for Fishers to spread their Nets upon. Ezek. xxvi. 14.

IN the Neighbourhood of this ruin'd City there is an ancient Piece of Work, commonly call'd *Solomon's Wells* or *Cisterns*, which is admired by Travellers, and deserves a brief Description. These Cisterns have obtain'd their Name from a Tradition that they are fill'd by a subterraneous River, which King *Solomon* discover'd by his great Sagacity; and that he caused them to be made for *Hiram* King of *Tyre*, as Part of the Recompence for the Materials that Prince had furnish'd towards building the Temple of *Jerusalem*. But though they are undoubtedly of great Antiquity, they are not so old as this Tradition makes them, being of a later Date than *Alexander's* Time, if we may judge by the Traces of an Aqueduct made to convey Water from thence to *Tyre*, which was carried over the *Isthmus* form'd by that Conqueror when he made himself Master of that City.—Of these Cisterns there are three still remaining entire, one of an octogonal Figure, twenty Yards in Diameter, and raised above the Ground nine Yards on the South Side, but only six on the North. The Wall of this Cistern or Basin is only Gravel and Pebbles, but so firmly cemented together as to appear like one solid Rock; and there is a Walk three Yards broad round the Brink of it, from whence we descend by a Step or two to another Walk more than twice the Breadth of the upper one. But what seems most surprizing is, that notwithstanding this Structure is so broad at
top,

top, it is still wider within, being built in such a Manner that the Water runs under the Walks, and it is not easy to find a Pole long enough to reach the Extremity of the Cavity. The Country People pretend that the Bottom of the Well could never yet be found by any Length of Line, but this is contrary to Experience. It is certainly very deep, and contains a vast Quantity of excellent Water; and the Spring is so plentiful, that a Stream issuing from it drives several Mills at a little Distance. This Stream flows from an Opening made by the *Turks*, who have stopp'd up the old one on the opposite Side of the Cistern, from whence the Water formerly issued into the Aqueduct above-mention'd, which has a Channel three Feet wide, and is raised about eighteen Feet from the Ground. The Course of this Aqueduct is Eastward for about a hundred Yards, and then it approaches the other two Cisterns, which are of a square Form, but not both of equal Dimensions. In each of these there is a little Channel, through which their Waters formerly flow'd into the Aqueduct; and thus the united Streams of the three Cisterns were convey'd to *Tyre*, and dispers'd over that City.

WE now come to take a View of *Jerusalem*, that once famed Metropolis of the *Jewish* Monarchy and Worship, whose Origin, Glory, and dreadful Catastrophe, are too well known to be here related. It is situated on a rocky Mountain, with steep Ascents on all Sides except

cept on the North, and surrounded with a deep Valley, which is again encompass'd with Hills at a moderate Distance. The private Buildings are very mean, the Streets narrow, and several of them full of Ruins; and, though its Circumference is scarce three Miles, it is but thinly inhabited. It is likewise to be observ'd, that the Situation of the present *Jerusalem* is different from that of the ancient City; for Mount *Calvary*, which was formerly appropriated to the Execution of Malefactors, was shut out of the Walls as a polluted Place; whereas since our Saviour's suffering upon it, the Reverence paid to it by the *Christians* on that account has occasion'd such an Alteration, that it now stands almost in the Centre of the City; and, on the contrary, Mount *Sion*, the most eminent Part of the old *Jerusalem*, is now left without the Walls. In a Word, the only Thing that renders *Jerusalem* considerable at present, is the great Resort of Pilgrims thither; and the accommodating them with Necessaries seems to be the principal Business of the Inhabitants.

It is against *Easter* that the Christian Pilgrims repair to *Jerusalem* in the greatest Numbers, to attend the religious Solemnity of that Season in the Church of the *Holy Sepulchre*. This Church, with many others throughout *Palestine*, was founded by the Empress *Helena*, Mother of *Constantine* the Great, whose Piety led her to take a View of a Country which had been the Theatre of the Redemption of Mankind,
and

and particularly the City of *Jerusalem*, which, to the utmost of her Power, she enlarged and adorn'd with magnificent Structures. The Length of this Church, which is built upon Mount *Calvary*, is about an hundred Paces, and its Width sixty, having at the West End of it a square Tower or Steeple, which appears somewhat ruinous, but the Edifice in general is kept in good Repair, and looks sumptuous and majestic. The Nave or Body of the Church is round, and has two circular Galleries one above another, supported by large square Pillars, formerly faced with white Marble. Here we see several Mosaic Pictures in concave Niches, representing Prophets, Apostles, &c. and amongst the rest are the Effigies of the Emperor *Constantine* and his Mother *Helena*, the Foundress of the Building. This Part of the Church is cover'd with a Dome, sustain'd by Rafter of Cedar, having an Opening at top, through which it receives a sufficient Light. Exactly underneath this Aperture is the Holy Sepulchre, which at first was a Cave underground, but the Rock about it having been cut away, it is now considerably above the Pavement of the Church, and is hewn into the Form of a Chapel. We are forced to creep into this Chapel or Grotto, if we may call it so, the Entrance being not above a Yard high; but within it is about eight Feet square, and as much in Height, all cut out of the solid

solid Rock, and lined with white Marble. The Tomb wherein our Lord was laid is raised in Form of an Altar almost three Feet from the Floor, extending the whole Length and half the Breadth of this little Chapel, so that there is not Room for above three Persons to kneel without much Inconvenience. A great Number of Lamps, which are kept here continually burning, make the Place excessively hot, the Smoke whereof evades by Vent-Holes cut thro' the Roof, over which there is a small Canopy cover'd with Lead, supported by six double *Corinthian* Columns. The Outside of the Chapel is likewise adorn'd with ten beautiful Pillars of white Marble, adjoining to the Wall, and sustaining a Corniche.

THE Choir of this Church is not unlike that of our Cathedrals. It is separated from the Nave by a Wall, which has a Door opposite to that of the Holy Sepulchre; and to the East it terminates in a Semicircle, where the High Altar stands, which is richly gilt, and hung round with the Pictures of several Saints, painted full-faced after the Manner of the *Greeks*, to whom the Choir belongs; but the Privilege of saying Mass in the Chapel of the Holy Sepulchre is confined to the *Latins*. A Dome of Free-stone covers this Choir, which is close at top, rough-cast on the Outside, and supported by large Pillars.

SEVERAL Parts of this Church are distinguish'd by the Name of *Holy Places*, and look'd

upon with more than ordinary Veneration, as having some particular Actions done in them relating to the Sufferings, Death, Burial, and Resurrection of our Blessed Saviour; and each of these sacred Places has its respective Altar. —One of these is call'd the Chapel of *Derision*, wherein there is an Altar sustain'd by two Pillars, and underneath it a Piece of greyish Marble, on which they say the Soldiers placed our Saviour when they crown'd him with Thorns, and mock'd him, saying, *Hail, King of the Jews*. —The Chapel of the *Prison* is another, being a little dark Place wherein they say our Lord was confin'd whilst Things were preparing for his Crucifixion, and where the *Greeks* keep a Lamp continually burning — Another of the *Holy Places* is a particular Part of Mount *Calvary*, about twelve Yards square, which is left much higher than the Floor of the Church, having Steps to go up to it; and here they pretend to shew the very Place where our Saviour was nail'd to the Cross. This Chapel is cover'd all over with Mosaic Work; and in the Middle of the Pavement there are some Marble Stones of several Colours, design'd to point out the Spot where our Lord's Blood fell when his Hands and Feet were pierced. Here are two Altars, before which hang sixteen Lamps, and a Candlestick with twelve Branches. —In an adjoining Chapel the Rock rises above the Floor in Form of an Altar, which is cover'd with white Marble, and in the Middle of it is a round Hole, about seven
seven

seven Inches in Diameter, and two Feet deep, which is affirm'd to be the very same wherein the Foot of the Cross was fix'd, on which our Saviour suffer'd; and just by we see a Cleft in the Rock, which is evidently genuine and natural, and said to be made by the Earthquake which happen'd at that Time. This Hole is now plated with Silver, and on each Side of it the Places where the two Thieves were crucified are represented by two Crosses fix'd on little Marble Pedestals.—The *Stone of Unction* is about seven Feet long, and two broad, adorn'd all round with a chequer'd Border of white and red Marble, and inclosed within Iron-Rails to prevent its being trod upon. It is so call'd as being supposed the very Spot where our Lord's Body was anointed, and prepared with Myrrh and Aloes for the Burial.—To these might be added several other *Holy Places*, as that where the Soldiers divided our Saviour's Garments; where the Cross was found on which he suffer'd*; where he appear'd to *Mary Magdalen* after his Resurrection, &c. all which Things are supposed to have been transacted within the narrow Limits of this sacred Structure.

* It is said the Place where our Saviour's Cross was discover'd was formerly a Ditch at the Foot of Mount Calvary, into which it was thrown by the *Jews*, and cover'd with Filth and Rubbish. Here it lay buried till the Time of the Empress *Helena*, who, upon the In-

THERE are many more remarkable Things in and about the City of *Jerusalem*, some of which it seems proper to mention, as they are generally shewn to Travellers. Upon Mount *Moriab* the *Turks* have built a Mosque, which is frequently call'd the Temple of *Solomon*, and is supposed to stand upon the same Ground that was formerly taken up by the *Holy of Holies*. It is an octogonal Building, cover'd with a Cupola, and though it is neither a large nor elegant Structure, it makes a grand Appearance by the sole Advantage of its Situation. The *Turks* have inclosed the Area where *Solomon's* Temple formerly stood, and will not suffer a Christian, on Pain of Death, to go within its Borders; but it may be distinctly view'd from the Top of a House call'd *Pilate's Palace*, and

formation of a certain *Jew*, caused Workmen to dig to a great Depth, where at last they found three Crosses; but being at a Loss how to distinguish the Cross of *Christ* from those of the two Malefactors crucified with him, the Doubt (we are told) was remov'd by a Miracle, a sick Woman being immediately cured of her Disease by touching our Saviour's Cross, after she had touch'd both the other Crosses without receiving the least Be-

nefit. The *Jew*, who had been the Instrument of this Discovery, and was an Eye-Witness of the Miracle, became a Convert to Christianity, and was afterwards Bishop of *Jerusalem*. What Truth there is in all this Story, we leave to the Reader's Judgment; but this is certain, that the Day on which the *Invention of the Cross* is supposed to have happen'd, *viz.* the 3d of *May*, is observ'd as a Festival by the Church of *Rome*.

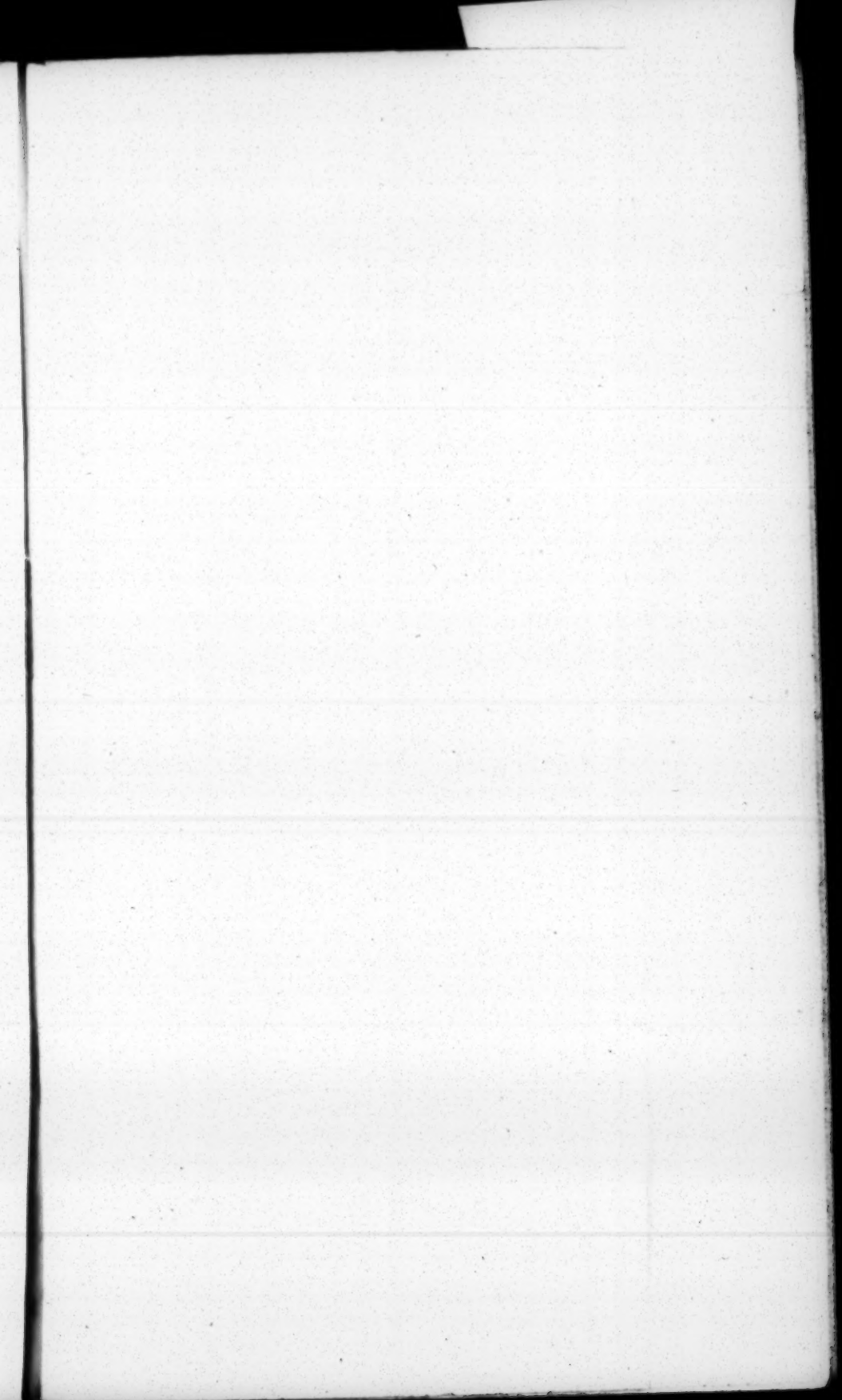
one may plainly see that it must have cost immense Labour to level such a spacious Area upon so strong and rocky a Mountain.

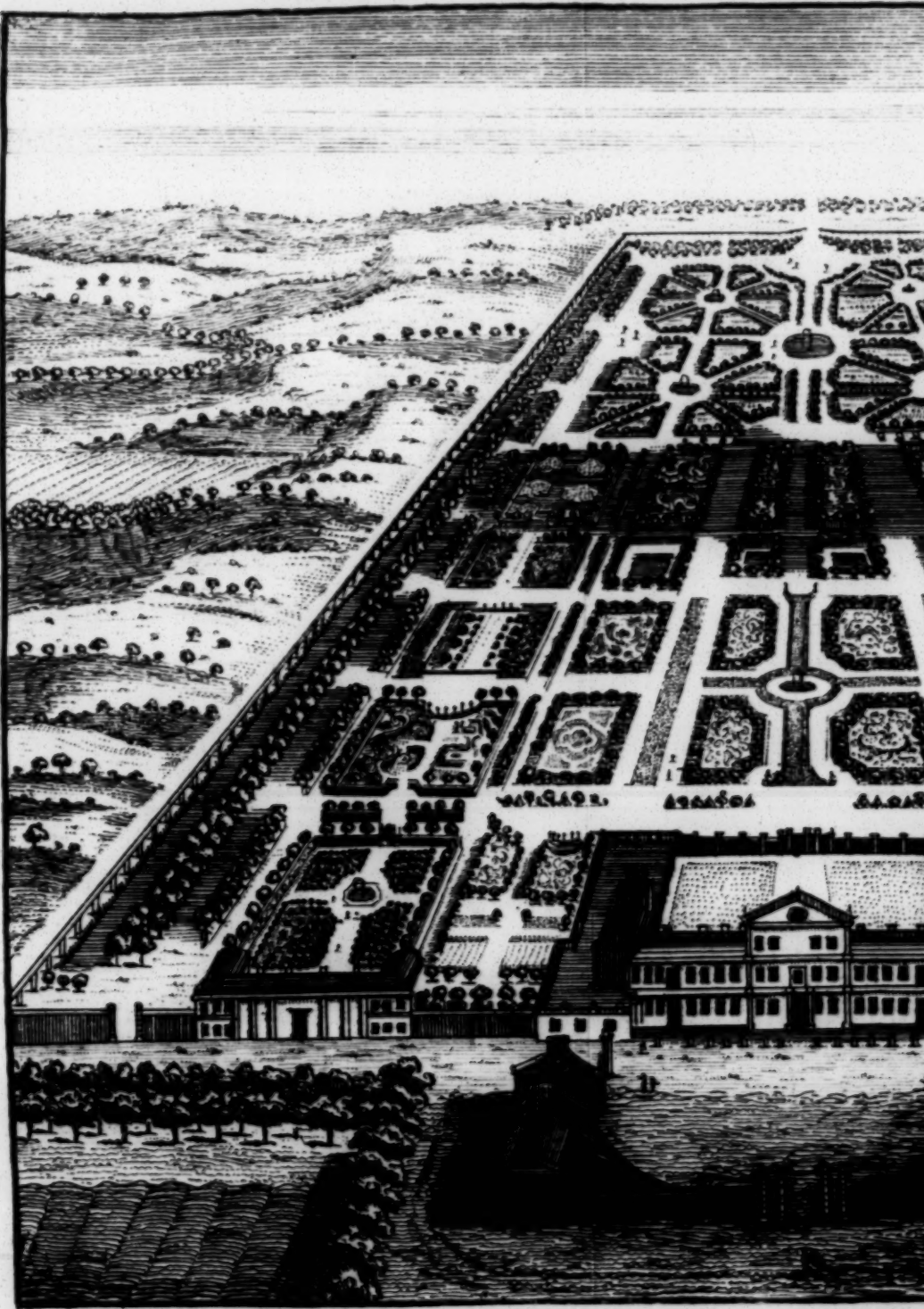
FROM this pretended Palace of *Pilate*, wherein the *Turkish* Sangiack now resides, begins what the Christians call the *Dolorous Way*, that is, the Way that our Lord was led to *Calvary*, the Place of his Crucifixion, which is about a Mile distant. In this Journey we pass under an old Arch that crosses the Street, in the Side of which there is a Window, where *Pilate* is said to have presented *Christ* to the People, saying, *Behold the Man*: And a little farther we are shewn the Ruins of a Church, built on the Place where the Blessed Virgin is reported to have fallen into a Swoon, on seeing our Lord bearing his Cross and used with Indignity. We likewise pass by the *Gate of Judgment*, through which Malefactors were anciently led to the Place of Execution, and which stood in the Western Wall of old *Jerusalem*, but is now considerably within the City.

AMONGST other Antiquities they shew us an ancient Building, which is made use of as a Prison, and is the very same (they say) from which *St. Peter* was deliver'd by an Angel. About a Furlong from thence stands an old Church belonging to the *Greeks*, said to have been erected by the pious *Helena*, upon the Ground where the House of *Zebedee* formerly stood, who they tell us was a Fisherman, and used to bring Fish from *Joppa* to *Jerusalem*. Where:

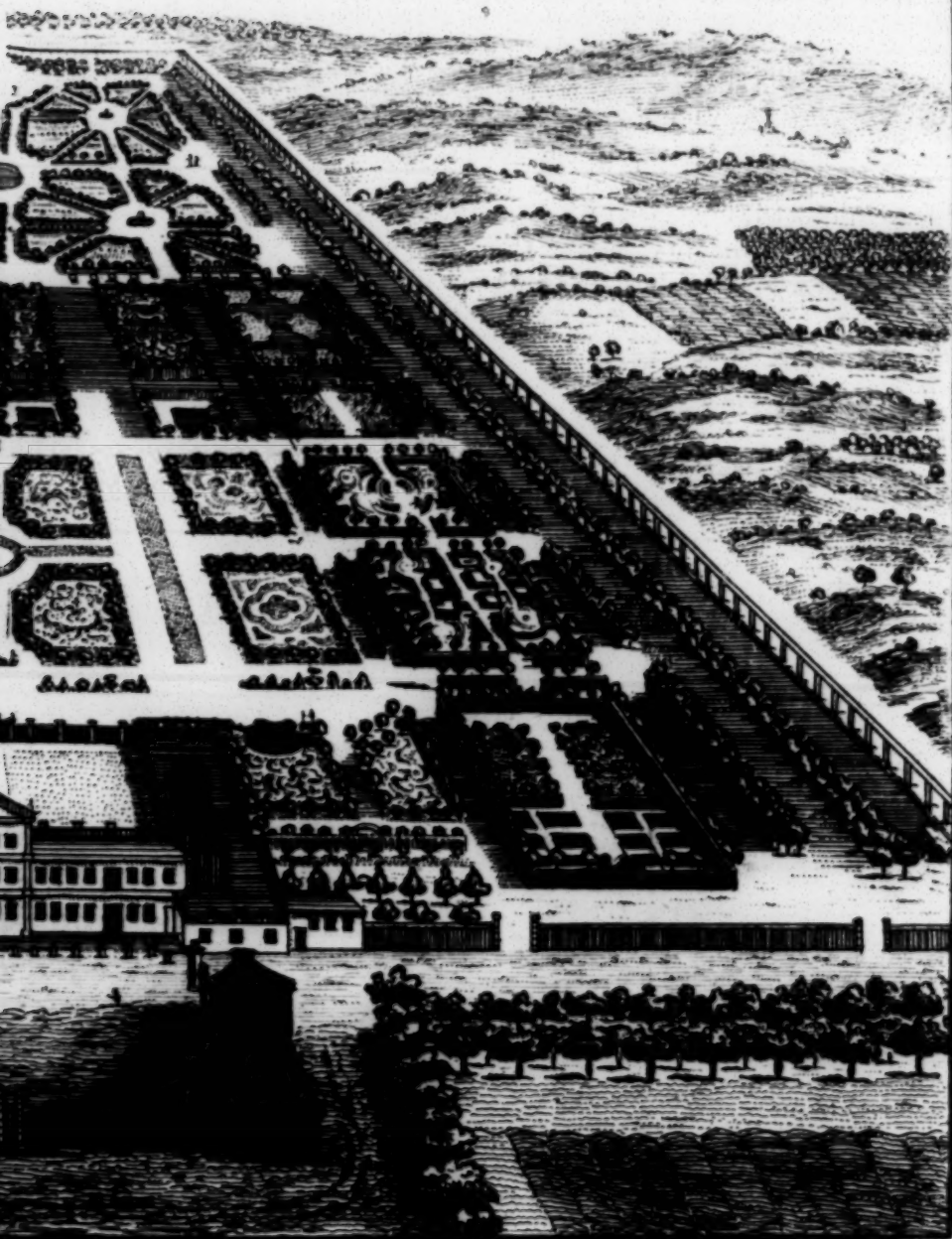
the House of *Mark* stood, to which *St. Peter* retired after his miraculous Deliverance, the *Syrians* have a small Church, wherein they boast of having a *Syriac* Manuscript of the New Testament about nine hundred Years old, and a little Stone Font made use of by the Apostles themselves. In the Church of the *Armenians*, which has a beautiful Pulpit made of Tortoise-Shell and Mother of Pearl, they shew three great Stones, which are reckon'd of extraordinary Value; one of them being the Stone on which *Moses* broke the two Tables, another being brought from the Place of our Saviour's Baptism, and the third from that of his Transfiguration.

It would be endless, or at least tedious, to enumerate the pretended Curiosities of this Kind, with which Strangers are amus'd; and therefore we shall take Leave of *Jerusalem*, after having mention'd a few Particulars observable in its Neighbourhood. Going out of the City at the Gate of *Bethlehem*, we see *Bathsheba's Pool*, as it is call'd, being supposed to be the same wherein she was washing herself when *David* spied her from the Terrace of his Palace. Passing by this Pool, we enter the Valley of *Hinnom*, on the West Side whereof is the *Potter's Field*, or *Aceldama*, that is, the *Field of Blood*, being purchased by the thirty Pieces of Silver, the Price of the innocent Blood of our Saviour. At present it is call'd the *Holy Field*, on account of the Veneration it has among *Christians*. The
 Piece





A View of the Palace & Gardens belonging to his Britannick/



Herrenhausen near Hanover. B. Cole sculp

Piece of Ground is only about thirty Yards long, and half as much in Breadth, being now the Burying-Place of the *Armenians*. One half of it is taken up by a square Fabrick, near twelve Yards high, over which are five Openings, in the Form of Cupola's, large enough to let down a Corpse, the Flesh whereof it is said to consume in the Space of eight and forty Hours. The *Christians* in *Jerusalem* give Credit to this Account, and Mr. *Sandys* himself acknowledges his Belief of it, induced thereto by the small Dimensions of the Place, the great Number of Burials there, and the Multitude of Bones that are piled about it; but Mr. *Maundrell* says, that looking through the Holes at top he could see many Bodies under several Degrees of Decay; from whence he conjectures, that this Grave does not make such quick Dispatch with the Corpses committed to it as it is commonly reported.

Not far from this Field we see a Cave hewn out of the Rock, consisting of several Rooms one within another, wherein the Apostles are said to have conceal'd themselves when they forsook their Master, on his being apprehended in the Garden. This Cave was perhaps at first made for a Sepulchre, and might afterwards serve for a Hermitage; but, be that as it will, it appears to have been formerly adorn'd with Painting and Gilding, and some pretend still to discern the Pictures of several of the Apostles. From hence we soon come to the Valley

Valley of *Jehoshaphat*, where we see the Well of *Nebemiah*, or rather a dry Pit, said to be the Place from whence he recover'd the Fire of the Altar, which had lain hid there during the Time of the *Babylonish* Captivity. On the same Side of the Valley is the Pool of *Siloam*, whither our Saviour sent the blind Man to wash, after having anointed his Eyes with Earth and Spittle. About a Furlong from hence is the Fountain of the Blessed Virgin, to which we descend by several Steps, the Spring lying deep in the Cavity of a Rock. At no great Distance from this Place they shew us the Spot where *Judas* hang'd himself after he had betray'd our Saviour; and a little farther, on the same Side of the Valley, we see several *Jewish* Monuments, two whereof seem to be valuable Antiquities, usually call'd the Sepulchre of *Zachary*, and the Pillar of *Absalom*.

THE first of these, supposed to be that of *Zachary* who was slain between the Temple and the Altar, is cut out of the natural Rock, is of a quadrangular Form, about six Yards high, and beautified with *Doric* Columns of the same entire Stone, which support the Corniche; and above that the Roof rises in the Shape of a pointed Diamond. *Absalom's* Pillar is sometimes call'd his *Tomb* or *Sepulchre*; however, he was not buried here, but perhaps the Monument might be hewn out of the Rock in his Life-time, to preserve the Memory of his Name after the Death of his male Issue. The Work

is lofty, and its Sides and Corners are adorn'd with *Doric* Pilasters; but after it has run a little way in a square Form, it changes into a Round, and terminates in a Point, the Top of it being almost shaped like a Bell. A great many Stones lie near this Monument, which are thrown there by *Turks* and *Jews*, as well as *Christians*, in Detestation of *Absalom's* Rebellion against his Father.

KEEPING along the Bottom of the Valley, we come to the *Sepulchre of the Blessed Virgin*, made at the Expence of the pious Empress heretofore mention'd. That Part of it above-ground is a square Building, flat at the Top; and on the South Side of it there is a Door, from whence there is a Descent of about fifty Steps. When we are half way down, they shew us on the Right Hand the Sepulchre of *Anna*, the Mother of the Blessed Virgin, and on the Left that of *Joseph* her Husband. At the Bottom of the Stairs we enter a spacious Church, wall'd on each Side, and arch'd above with the natural Rock. In the Middle of the Church is a little square Chapel, faced with Marble; and opposite to the Door is the Virgin's Tomb, in Form of an Altar, where they say she was buried by the Apostles. The *Turks*, as well as *Christians*, have a great Veneration for this Place, and contribute to the Charge of eighteen Lamps which are kept here continually burning. Each End of the Church is semicircular, in one of which stands the great Altar, upon
which

which the Light descends from a Cupola above, and at the other End there is a Well of very good Water.

CROSSING the Valley of *Jehoshaphat*, we come to Mount *Olivet*, or the *Mount of Olives*, the loftiest Eminence in the Neighbourhood of *Jerusalem*, which overlooks the highest Part of the City, and is held in extraordinary Veneration by the *Christians*, and even by the *Mahometans* themselves. Half way up the Hill we come to several Grottos, which are call'd the *Sepulchres of the Prophets*; and a little higher there is a Grotto or subterraneous Church, consisting of twelve arched Vaults, wherein they say the Apostles framed the Creed which bears their Name. On the Top of this Hill, from whence the Saviour of the World ascended into Heaven, the Empress *Helena* caused a magnificent Church and Monastery to be erected, the greatest Part whereof is now in Ruins; but there is a little octogonal Chapel still remaining, with a Dome over it sustain'd by eight Pillars of white Marble. This is call'd the *Chapel of the Ascension*, and is at present in the Possession of the *Mahometans*, who make the *Christians* pay a small Matter for Admission to see a Cavity in the Rock which they pretend is the Print of one of our Saviour's Feet.

BETWEEN the Foot of Mount *Olivet* and the Brook *Cedron* we are shewn the Garden of *Gethsemane*, a Piece of Ground about sixty Yards square, and planted with Olive-Trees of

an uncommon Size, which are said to be the same that grew there in the Time of our Saviour. At the upper End of the Garden there is a flat naked Rock, where they say the Apostles fell asleep during our Lord's Agony; and near this Place is a Grotto, wherein our Saviour is supposed to have undergone that bitter Part of his Passion, when *his Sweat was as it were great Drops of Blood falling to the Ground.*

FROM *Jerusalem* it is usual to make an Excursion, and take a View of *Betlehem*, which is now dwindled to a small Village, but will be ever memorable for being the Birth-Place of the Saviour of Mankind, and on this Account it is much resorted to by Pilgrims. Here we find a magnificent Church, built by the Empress so often mention'd, over the very Spot where our Saviour is supposed to have been born. We enter this Edifice through a Portico supported by sixteen Pillars, and coming into the Nave or Body of the Church, we find its lofty Roof, which is of Cedar, supported by four Rows of Marble Columns. The Choir is large, and terminates in a Semicircle, where stands the High Altar; and on each Hand are two other Divisions, with their respective Altars. A noble Cupola, leaded on the Outside, and adorn'd within with Mosaic Figures, covers this Part of the Church; and near the great Altar are two little Flights of Marble Steps, by which we descend into the *Chapel of the Nativity*, where there is an Altar, with several Lamps
con-

continually burning before it. Descending a few Steps lower, we are shewn the Manger wherein our Lord was laid, which is hewn out of the Rock, about two Feet high from the Floor, and is lined with white Marble.

AT a little Distance from the *Latin* Convent is the *Grotto of the Virgin*, held in great Veneration on account of a Tradition that the Virgin *Mary* hid herself there with her Son *Jesus*, to avoid the Fury of *Herod*, whilst *Joseph* made the necessary Preparations for their Departure into *Egypt*. It is of a circular Form, cut out of a chalky Rock, and has an Altar in it, where Mass is sometimes celebrated. Over this Grotto stood a Nunnery, built by *St. Paula*, a *Roman* Lady, who there ended her Days; but nothing of it now remains, except the Foundation.

ABOUT four Miles South of *Bethlehem* are those famous Fountains or Pools, said to have been the Contrivance and Delight of *Solomon*. They are three in Number, one above another, and so disposed that the Waters of the uppermost descend into the second, and those of the second into the third. Their Form is quadrangular, and each of them about ninety Paces broad, but as to their Length they are somewhat different. They are very deep, and lined all round with a Wall, except where the natural Rock makes it unnecessary; and indeed it must be acknowledged they are a Work not unworthy of that wise Prince whose Name they bear, and contain such a Store of excellent Spring-Water,

Water, as perhaps cannot be found in any other Part of *Palestine*.—The Remains of an Aqueduct, which convey'd Water from hence to *Jerusalem*, are still to be seen, being a Sort of coarse Marble Stones, perforated and let into one another after the Manner of Pipes, and, for their better Preservation, cover'd over with a Case or Arch of smaller Stones, cemented together with a very durable Mortar; and yet as strong as this Work has been, the *Turks* and *Arabs* have so destroy'd it, that though it formerly extended five or six Leagues, there are only some Fragments of it here and there remaining.

THE Reader perhaps may think we have detain'd him too long upon the Subject of Antiquities, but we hope he will excuse us, considering we are in Countries that abound with Curiosities of that Nature, and which will not occur very frequently in the remaining Part of our Work. However, we cannot forbear mentioning an extraordinary Piece of Antiquity, which Travellers of undoubted Veracity and Judgment inform us is still existing in the Plain of *Rephidim*, to the Westward of Mount *Sinai*. Here the *Israelites* encamp'd when they came out of the Wilderness of *Sin*, and murmur'd for Want of Water; on which Occasion God was pleas'd to supply their Wants in a miraculous Manner, by causing *Moses* to smite the Rock with his Rod, who from thence call'd the Place *Massah* and *Meribah*. This Rock of

Meribah, or of *Rephidim*, is still to be seen lying loose by itself, though it seems to have belong'd to Mount *Sinai*, being a large Block of red Granite, whereof the greatest Part of that Hill consists. Its Height is about twelve Feet, and on the Top of it, as well as down each Side, there is a Sort of Channel form'd (as is supposed) by the Water, it appearing to be incrust'd, and of a different Colour from the rest of the Rock. There are likewise several Apertures along this Channel, of various Dimensions, from whence the Water is imagined to have issued, and which indeed seem to be evident Tokens of the Truth of the Miracle; to say nothing of certain Fissures within the Openings, which cannot possibly have been the Work of Art, nor does Chance appear to have had any Hand in their Formation. This Rock is call'd the *Stone of Moses* by the *Arabs*, who believe it endued with extraordinary Virtues, and accordingly put Herbs into the Holes above-mention'd, and then give them to their Camels as a Remedy for all their Disorders.

HAVING several times mention'd the *Arabs*, we think it not improper to conclude this Article with a short Account of that People, with whose singular Way of Life some of our Readers may be little acquainted. The *Arabs* are the Descendants of *Ishmael*, of whom the Angel foretold that he would be a *wild Man*, and that *his Hand would be against every Man, and every Man's*

*Man's Hand against him**: And this is almost literally true of his Posterity to this Day, many of whom make it their Business to attack and plunder Travellers, and are also frequently at Variance with one another, keeping up implacable and hereditary Animosities among themselves. This indeed is not the Character of the whole People, for some of them are remarkable for their civil Behaviour. They usually live in Tents, continuing in one Place as long as they have Water and Shrubs for their Camels to feed upon, and when they are spent removing to another. It is in Camels, and perhaps a few Goats and Sheep, that their Riches consist; but their common Food is Dates and Goat's-Milk. If they kill a Sheep, they eat it all at once, though they have nothing but Bread to live upon the Day after. They are very fond of Venison, but Camel's Flesh is reckon'd one of their greatest Dainties. If a Traveller is liberal to them, and give them something to eat, they seldom do him any Injury; nor are they churlish themselves in this Respect, but will invite Strangers to eat with them as they pass by their Encampments, and are pleased to see them conform readily to their Customs.

Of this Disposition some *English* Merchants were Witnesses, who in their Journey through the Desert between *Aleppo* and *Palmyra* met with an Encampment of *Arabs* under an E-

* *Gen.* xvi. 12.

*mir** or Prince named *Affyne*. This Prince's Tents cover'd a large Plain, and took up so vast a Space that the utmost Extent of them could not be discern'd from a neighbouring Eminence. The Emir's Tent was nearly in the Middle, the rest being pitch'd about it, not in a circular Manner, but extending in Length as the Plain open'd, for the better Conveniency of a Stream of Water which ran through the Encampment. As soon as the Merchants alighted, they were conducted by the Emir's Officers to a very noble Tent pitch'd next to his own, and before Supper the Prince paid them a Visit in Person, bidding them welcome to *Fay* (the Name of the Spring near which they were encamp'd) and asking them what they had seen in their Travels. When Supper was brought in, there was a large Dish of *Pilau*, (or boil'd Rice) with twelve or thirteen Dishes of several Sorts of Meat about it, all dress'd after their Manner, but exceeding good. After the Merchants had eat and drank what they pleased, they were succeeded by their Servants, it being the Custom of the *Arabs* and *Turks*, from the highest to the lowest, to eat at the same Table, the best Sort sitting down first, and so in Order, till all have done.—Next Morning the Prince

* *Emir* is a Title of Dignity or Quality among the *Turks* and *Saracens*, attributed to such as are descended from their Prophet.

Mahomet. They are held in great Veneration, and have the sole Privilege of wearing a green Turban.

went

went to a great Entertainment made him by one of his Grandees, for which Purpose two young Camels were kill'd, which is the highest Piece of Magnificence amongst these People. The Tent was very large, and to make it the more capacious, it was left open at one End, the King being seated at the other upon a Place raised with Cushions and Quilts, and Carpets before him. He did not sit cross-legg'd, as the rest of the Company were obliged to do, but in a leaning Posture. They seem'd to observe an exact Order with Respect to their Places, and when any Person of Note enter'd, those who were near his Seat rose up, and stood till he had seated himself, but far the greatest Part of the Company could not get within the Ring. The Dinner was serv'd up in large wooden Bowls carried by two Men, of which Sort, besides small ones, there were fifty or sixty. In the Centre was placed a Bowl of a larger Size, fill'd with Camel's Bones and a thin Sort of Broth in which they were boil'd. The rest of the large Dishes seem'd fill'd with the same Sort of Food, which was a Kind of Plum-broth, made of Rice and Camel's Flesh, and season'd with Spices. The smaller Dishes likewise contain'd Rice dress'd in different Ways, some of them having *Leben* pour'd upon them, which is thick sour Milk much esteem'd among the *Arabs*, being very proper to quench Thirst in their hot Country. As to Knives, Forks, Spoons, &c. they are useless Things among

the *Arabs*, who thrust their Hands into the Dish, and eat by Handfuls, the Prince falling on the nearest Dish, and the rest following the Example: And because the Dishes placed in the Middle were too remote to be reach'd, there was a Person appointed on purpose to step in amongst them, who with a long Ladle help'd any one according to his Desire. When the King had eat what he thought fit, he rose up and wash'd, and then retir'd to his former Seat.

THUS much may serve to give the Reader some Idea of the Manner of Life of these roving *Arabians*. Our next Step, according to the Method hitherto observ'd, is to describe the remarkable modern Structures in the *Asiatic* Dominions of the *Turks*, which are chiefly their Mosques, and these being pretty much alike, a View of three or four will be sufficient.

BUILDINGS.

NEXT to *Constantinople* perhaps *Aleppo* is the most opulent and considerable City in *Turky*, if any Judgment may be form'd from its publick Structures; there being about a hundred and twenty Mosques within and without the Walls, and some of them very magnificent. The principal of these, supposed to have been built by the Empress *Helena*, is a sumptuous Edifice, and has a large Court before it paved with black and white Marble, and a great Ba-
son

son with a Dome in the Middle, supported by six Marble Pillars. On the South, there is a Fountain cover'd with another Dome of like Structure; and round this Court runs a noble Portico of seventeen Arches on one Side, and eleven at each End, under which the *Turks* are frequent at their Devotions.—Some other Mosques in *Aleppo* are not much inferior to this, particularly one with a large and lofty Dome cover'd with Lead, as most are in *Turky*, which with the tall slender Minarets make their Cities look very handsome at a Distance. Here are also some *Turkish* Monasteries, one of which is a most stately Building, adorn'd with a noble Fountain, and having a fine Hall paved with Marble, and cover'd with a Cupola.

THE great Mosque of St. *John* at *Damascus*, formerly a Christian Church, is reckon'd one of the most magnificent in *Turky*, being three hundred Paces in Length and sixty in Breadth, and having a fine Court before it, paved with a Kind of Stones remarkable for their Transparency. Round about it are Pillars of Marble, Porphyry, Jasper, &c. which support a Piazza very curiously painted in Mosaic. It has twelve large Gates cover'd with Brass, and stamp'd all over with *Arabic* Characters. The Inside is said to be finely painted with Gold and Azure, but it is not easy to come at a Sight of it; for no Christian is permitted to enter it, without forfeiting his Life or his Religion.

BUT

BUT of all the *Turkish* Mosques, none are more sumptuous, or had in greater Veneration, than those of *Mecca* and *Medina*, which are resorted to at certain Seasons by prodigious Numbers of *Mahometan* Pilgrims, the former being the Place of their Prophet's Nativity, the latter of his Burial. The *Kaaba*, or *Holy Temple*, at *Mecca*, towards which the Disciples of *Mahomet* turn their Faces when they pray, and to which they are obliged to make a Pilgrimage at least once in their Lives*, either in Person or by Proxy, is a little square Building about fifteen Feet long, twelve broad, and thirty high. It is girt round with two Belts of Gold, the one near the Bottom, the other near the Top. The Door is of beaten Silver, and a Spout of Gold carries off the Water that falls upon the Roof. The Walls are constantly cover'd with Hangings of black Silk, sent thither every Year at the Expence of the Grand Signior; and the Building is surrounded with a beautiful Cloyster, which serves as a Mosque or Place of Devotion, the holy Temple itself being only open on some solemn Festivals.

* M. *Thvenot* tells us, that *Mahomet* was not the first Author of these Pilgrimages to *Mecca*, but that the *Arabians*, for many Ages before him, used to frequent it in the same Manner, and

made it the Center of their Pagan Worship, out of Veneration for the *Kaaba*, which they believed (as the *Turks* still do) was built by *Abraham*.

It

It cannot be expected we should have very particular or certain Accounts of this Holy Temple at *Mecca*, since Christians are not permitted to come within five Miles of the City; and a Prohibition of the same Kind forbids their approaching within a certain Distance of *Medina*, a Place celebrated for the Tomb of *Mabomet*. The Mosque, in which this stately Monument is preserved, is a majestic Edifice, supported by four hundred Columns, and illuminated by a great Number of Lamps continually burning. It has a Dome cover'd with Plates of Silver, and Cloth of Gold is spread upon the Floor. The Tomb itself, which the *Arabs* call *Turbe*, is supported by black Marble Pillars, and encompass'd with a Balustrade of Silver; for as to the vulgar Notion of its being suspended in the Air by the Power of two Magnets, it hath been long enough exploded. The Whole is inclosed with a Wall, which is pierced with Windows fenced with Silver-Grates, and enrich'd on the Inside with precious Stones of great Beauty and Value. A great many Lamps are kept burning round this Tomb, which is cover'd with a rich Pall of Gold and Silver Tissue, sent annually from *Cairo* by the Grand Signior's Order. He likewise sends a fine Copy of the *Koran*, and one of the best Camels in the Country is chosen to have the Honour of carrying the Present; after which the Beast is exempted from Labour the rest of his Days, and when he grows old they kill and eat.

eat him with great Solemnity. And we may add, that the *Mahometans* who have made the Pilgrimage to *Mecca*, and visited their Prophet's famous Tomb, are ever after reputed Saints, and may even be wicked with Impunity.

TRADE, MANUFACTURES, &c.

SMYRNA and *Aleppo* are undoubtedly the most trading and flourishing Cities in all the *Asiatic Turkey*, vast Quantities of rich Merchandise being continually transported thither from *Persia*, *Arabia*, *Tartary*, and other Countries, by Caravans of Mules and Camels, and thence by Sea to all Parts of *Europe*. *M. Tournefort* considers *Tocat* as the Center of the Trade of *Anatolia*, and according to his Account that City is considerable for its Manufactures, especially those of Copper Vessels and Utensils, which they make very handsome, and send to *Constantinople* and *Egypt*. They have their Copper from Mines about ten Days Journey from *Tocat* towards the Side of *Angora*, and from others three Days Journey from *Trebisond*, but these are not so rich as the former. The painted Cloth of *Tocat* is not so beautiful as that of *Persia*, but they vend it in *Muscovy* and *Crim Tartary*, and even in *France*, according to the above-mention'd Author. Their Silk Manufacture is not inconsiderable, a great Quantity of the *Persian* Silk, as well as *Turkish*,
being

being used in making slight Stuffs, Buttons, Frogs, &c.

THE City of *Damascus* in *Syria* is particularly famous for its Manufactures of Iron and Steel, many thousand Hands being there employ'd in making Scimeters, Swords, Knives, and other Cutlery Wares, which are in great Request all over *Turky*, on account of their excellent Temper.—From this City the Art of *Damaskeening* likewise had its Origin, as the Name implies*; by which we mean that of adorning Iron, Steel, &c. by making Incisions therein, and filling them up with Gold or Silver Wire, chiefly used in enriching Sword-blades, Guards, Locks of Pistols, &c. This Art is partly Mosaic Work, partly Engraving, and partly Carving. As Mosaic Work, it consists of Pieces inlaid; as Engraving, the Metal is indented; and as Carving, Gold and Silver are wrought therein in *Relievo*. There are two Methods of *damaskeening*, the first of which is most beautiful, viz. when the Artist cuts the Metal with Tools proper for engraving, and then fills up the Incisions or Notches with a pretty thick Wire. In the other, which is only superficial, the Workman makes Hatches or Strokes across the Steel with

* If the Art had not its Rise at *Damascus*, the Workmen of that City seem at least to have excell'd in it beyond those of other Countries; though M. *Felibien*

attributes the Perfection of the Art to his Countryman *Cusinet*, who was famous for it in the Reign of *Henry* the Fourth.

a Cut-

a Cutting-Knife, such as is used in making small Files. For the first it is requisite the Gravings be made in Dove-tail Form, that the Wire, which is thrust forcibly into them, may adhere the more strongly. In the second Way, which is the most usual as being the most easy, they heat the Steel till it changes to a violet or blueish Colour, and having hatch'd it over, they draw the Design or Ornament intended with a small brass Point or Bodkin, and then conducting or chasing the fine Wire according to the Figures designed, they sink it carefully with a Copper-Tool into the Hatch's of the Metal.—It may be added, that to the Artificers of *Damascus* we originally owe that Sort of filken Stuff call'd *Damask*, which has some Parts of it raised above the Ground, representing Flowers or other Figures.

THE Manner of preparing *Marroquin*, commonly call'd *Morocco* or *Turky Leather*, which is brought to us from the *Levant**, is so curious, and so little known amongst us, that we think an Account of it will be no disagreeable Conclusion of this Chapter. This Sort of Leather is the Skin of a Goat, or some Ani-

* Some suppose, from the Name, that the Art of preparing these Skins was first borrow'd from the Kingdom of *Morocco*, but of this there is no Certainty. We have them indeed from *Bar-*

bary, and so we have from *France* and *Spain*; but as they are chiefly brought from *Asiatic Turkey*, this seems a proper Place to speak of the Art of dressing them.

mal resembling it, frequent in the Eastern Countries, and is dress'd black, blue, red, yellow, &c. Much of the yellow Kind is prepared at *Tocat*, of the red at *Diarbeck*, a City on the River *Tigris*; and, in short, the Manufacture is briskly carried on at *Aleppo*, and several other Cities in the *Turkish* Dominions.—To prepare black *Morocco*, the Skins having been dried in the Hair are steep'd three Days and Nights in clear Water, stretch'd on a wooden Horse or Leg like that used by Tanners, beaten with a large Knife, and steep'd afresh in Water, which is chang'd daily. After this they are thrown into a large Vat in the Ground, full of Water in which Lime has been slaked, from whence they are taken out every Night, and return'd again in the Morning, for fifteen Days together. They are then thrown into a fresh Vat of Lime and Water, and shifted Night and Morning, as before, for fifteen Days longer. Being then rinsed in clear Water, and the Hair taken off with the Knife, they are put into a third Vat, and shifted about three Weeks in the same Manner; after which, being laid to steep twelve Hours in a River, they are put into Pails, and pounded with wooden Pestles. They are then laid on the Horse, and the Flesh taken off; returned into fresh Water, and the Hair-Side scraped; and after a third Soaking in Water they are thrown into Pails of a particular Form, having Holes at Bottom. Here they are beaten for the Space of an Hour in different Waters, then stretch'd

on the Leg, and scraped on each Side; and being once more put into fresh Water, and stretch'd again, they are sew'd up like Bags, leaving out the hind Legs, which make an Aperture for a Purpose that will presently be mention'd. The Skins thus sewed are put into luke-warm Water, wherein Dogs Excrement has been dissolved, and are there stirr'd about with long Poles for half an Hour or more, then left at Rest a dozen Hours, when they are taken out and rinsed in fresh Water. They are now fill'd by a Tunnel, with a Preparation of Water and Sumac* heated over the Fire till ready to boil, and as they are fill'd, the hind Legs are sew'd up to stop the Passage. In this State they are stirr'd about in a Vessel of Water four Hours successively, taken out, and heaped upon one another. After they are sufficiently drain'd, they are open'd, and fill'd a second time with the same Preparation; then sew'd up again, kept stirring two Hours, piled up, and drain'd as before. This is once more repeated, but this last time they are stirr'd only a Quarter of an Hour, after which they are left till the next

* *Sumac* or *Rhus* is a Shrub not unlike the little Service-Tree, growing in Spain, Turkey, and other warm Countries. Its Berries or Fruit are astringent, and therefore of Use in Medicine. The Ancients used them to season their Meat, whence the Tree is call'd *Rhus obsoniorum*; and from the Use made of the Leaves and small Branches in dressing of Leather, it has obtain'd the Name of *Rhus coriariorum*.

Morning, when they are laid to drain on a Rack, then open'd, the Sumac taken out, and the Skins folded in two from Head to Tail, the Hair-Side outwards, and laid over each other on the Leg to compleat their draining. Being then stretch'd on a wooden Table, the remaining Flesh and Sumac is scraped off, and the Hair-Side rubb'd over with Oil, and that again with Water. In this Condition they are wrung in the Hands, then stretch'd and press'd on the Table with an Iron-Instrument like that of the Curriers, the Flesh-Side uppermost; and being afterwards turn'd, the Hair-Side is rubb'd strongly over with Rushes, to squeeze out as much as possible of the Oil remaining within. The first Course of Black is now laid on the Hair-Side, which is done by a Kind of Dye made of four Beer tinged with the Rust of Iron. Having then hung in the Air till they are half dry, they are stretch'd on a Table, and rubb'd over every way with a Pummel or wooden Instrument full of Furrows crossing each other, to raise the Grain. They are afterwards lightly sprinkled with Water, then sleek'd by rubbing them with Rushes, and having had a second Course of Black, they are dried, laid on the Table, rubb'd over with a Pummel of Cork, wetted again, smooth'd over anew, and to raise the Grain the third time the wooden Pummel is used. After the Hair-Side has receiv'd these Preparations, it is strongly rubb'd over with a woollen Cap, a Lustre being given it by

Barberries, Citron, or Orange; and the Flesh-Side is pared with a sharp Knife. The whole Process is finish'd by raising the Grain lightly with the Pummel of Cork, which leaves the Skins in a Condition for Sale or Use.

THE Reader will naturally imagine that the Order or Number of these Operations may vary in different Places, according to the Discretion or Fancy of the Workman, but the material Part is always the same. The Skins intended for red Morocco, after having undergone a Process much like the Beginning of that above described, are thrown into Water impregnated with Alum; after which they are drain'd, wrung out, pull'd on the Leg, and folded the Flesh inwards. In this State they receive their first Dye, by dipping them in a red Liquor, prepared with Lac and some other Ingredients, of which the Dressers of this Sort of Leather make a great Secret. They are afterwards thrown into Water, in which white Galls reduced to Powder have been steep'd, where they are stirr'd incessantly for a Day together; and indeed the Sumac, Galls, and Alum seem to be the chief Ingredients used in the Preparation of these beautiful Sorts of Leather; for as to the particular Compositions used to communicate the various Dyes, they are Secrets lodg'd in the Breasts of the Artificers, almost every one pretending to some peculiar *Arca-*
num.

CHAP. II.

Of PERSIA.

SPRINGS.

THERE is not, according to the best Accounts, a Country in the World that has more Mountains and fewer Rivers than *Persia*, so that the Soil in general cannot be much commended, being in many Places perfectly sandy and barren, though others are exceeding fruitful, producing Plenty of Grain and Herbage, Nor is *Persia* without its mineral Waters, of which the most frequented are those of *Baringe*, half a League from *Tauris*, and those of *Seid-Kent*, another Village six Leagues from that City. These Waters are sulphureous, and some of them scalding hot, whilst others are surprizingly cold.—About ten Miles from *Asfeen*, at the Foot of a high Mountain lying North of *Gombron* or *Bender-Abassi*, there are several Springs both hot and cold, which are resorted to for the Cure of Venereal Disorders, rheumatic Pains, the Itch, Leprosy, and other cutaneous Distempers; but they are only used externally by bathing, the Water, if drank, being found a very powerful Emetic. No People live near these Baths, but a few Sheds have been erected for the Accommodation of Pa-

tients, who must take care to furnish themselves with all other Conveniencies.—We might enumerate many other medicinal Springs throughout this great Empire, but their Qualities being much the same, the Repetition of them would be tedious, and therefore we proceed to another Subject, viz. that of

FOSSILS.

AS *Persia* is very mountainous, it abounds with Metals and Minerals, particularly Copper, Lead, and Iron, and perhaps with Gold and Silver, but the *Persians* are too indolent to make such Discoveries. They have likewise Plenty of good Marble; and near *Bender-Congo*, a Sea-port on the *Persian* Gulf, there are whole Hills of Sulphur, from whence it is dug up in Masses of different Bigness, and sent in considerable Quantities to the *Indies*.—In the Eastern Parts of *Persia* there is found a pale, yellow, loose earthy Substance or Marle, wherein Nitre or Salt-petre* is lodg'd in imperceptible Parti-

* It is proper to observe, that the *Nitre* or *Salt-petre* of the Moderns is a quite different Substance from the *Nitre* or *Natrum* of the Ancients, which, though it has been neglected and not perfectly known for many Ages, is found in many

Parts of *Asia* thrown up in little Hillocks on the Surface of the Earth, in Form of a coarse loose Powder. This (says Mr. Hill) is what Authors have usually call'd *Soap-Earth*, and might perhaps at this Day be made a profitable Branch of Commerce

cles,

cles, as a Metal in its Ore, and is actually obtain'd from thence in great Abundance. This Earth is moderately heavy, easily crumbles to Powder on handling, melts freely in the Mouth, but leaves a Grittiness between the Teeth, and a strong Sensation of Salt-petre on the Tongue. Its natural Colour (as we have said) is a pale Yellow, but it is sometimes found whitish, reddish, or almost black, from an Admixture of other Earths amongst it, though the yellower it is, the stronger is the Taste of the Nitre.

THE Method of obtaining the Salt from this Earth or Ore is by Water, which does to it what Fires does to the Ores of Metals. For this Purpose a large deep Pit is prepared, well lined on the Inside with Clay, which being half fill'd with Water, the Earth is thrown into it, where it is broken and moulder'd to Powder, and all well stirr'd together. Having let it stand four or five Days, they open a Hole in one Side of the Pit, which lets out all the clear

not as suited to supply the Place of our Salt-petre, being of a very different Nature, but as it would answer the Purpose of Pot-ashes in the making of Soap and Glass. Mr. Hill has given very good Reasons to think the Substance he describes is the true Nitre of the ancient *Greeks*, and the same that

is mention'd by the Prophet *Jeremiah*, who says, (Ch. ii. 22.) *though the Sinner washes himself with Nitre, yet his Iniquity is mark'd before the Lord*; for this is evidently spoken of a Substance that has an absterfive or cleansing Quality, and therefore not applicable to our modern Nitre.

Water

Water into a Channel, through which it runs into another wide and shallow Pit, level at the Bottom, furrounded by slight Walls except on the North-East Side, and open at the Top to the Sun, whereby the Water gradually evaporates, and the Salt it had imbibed from the Earth shoots into small Cryftals, which are the rough Salt-petre we receive from the Eastern-Countries. This is the Way of procuring the far greatest Quantity of Nitre that is made in the World, so that this Earth seems to be its most natural Ore, though there are various other Methods of obtaining it*. The Uses of Salt-

* Philosophers generally allow the Air to be impregnated with a volatile Nitre, thence communicated to pinguious alkaline Earths, and other Substances adapted to receive it; and *Hoffman* affirms, that Nitre may at any time be extracted from the Air, by exposing to it an alkaline Salt, in a Place not open to the Rain and Dews. The Winds blowing from the Northerly and Easterly Points contribute most to the Generation of Nitre; and it is observable, that the Earth we have been describing is always found on the Sides of Hills facing those Quarters. Earths moisten'd with the Dung and

Urine of Animals, as those of Sheep-folds, Stables, Pigeon-houses, and the like, all afford more or less Nitre; and in *France* great Quantities of this Salt are annually made by boiling in Water the Matter of old Walls, the Plaister of ruin'd Buildings, the Earths of Places where Animals have been fed, &c. which Salt they refine by boiling it three or four times, and passing it through several Lyes: And why might not a Manufactory of this Kind be set up and carried on in *England* with as much Advantage as at *Paris*, where such a one has been many Years establish'd?

petre

petre in making Gunpowder, and in preserving Substances as common Salt, are well known; and in Medicine it is of such excellent Service in Fevers, Inflammations, and several other Disorders, that it seems worthy of all the Regard that is paid to it in the present Practice.

THERE is another Kind of Salt, call'd *Borax*, whose Composition, whether natural or artificial, seems, till of late, to have been little understood. However, at present it is known, that in many Parts of *Persia*, as well as in the Dominions of the Great Mogul and other Eastern Countries, there oozes from the Sides of Hills that abound with metallic Ores, especially that of Copper, a muddy Water of a blueish grey Colour, sometimes a little reddish, and sometimes greenish, but the two last Dyes are only accidental. It is of a brackish, bitterish, and very nauseous Taste, and has sometimes a bituminous Matter swimming on its Surface. This Water, where it runs in sufficient Plenty, is directed in its Course into several wide and shallow Pits, where it is left to evaporate; but those who have the Care of the Pits are frequently putting in large Quantities of the Mud deposited by the Water in its Channel or about the Mouth of the Spring, which they mix thoroughly by stirring it about, and from time to time skim off the bituminous Substance, whenever it appears. The Whole being, by Evaporation and the Addition of Mud, brought to the Consistence

stence of a soft Pap, they throw over it in the Heat of the Day a large Quantity of melted Fat, and having stirr'd it well together they immediately cover it with a light Crust of dried Vegetables, small Branches of Trees, or the like, and over that lay a thin Covering of any common Clay. Thus it is left to the Action of the Sun; and when it is judged by making Trials about the Edges, that the Moisture is wholly evaporated, which is usually in seven or eight Days from the covering of the Pits, the Coat of Clay and the Vegetables are removed, and there appears a loose crumbly Substance, which being gently broke to pieces with Spades and sifted, the loose earthy Powder runs through the Sieve, and leaves behind it the Salt concreted from the evaporated Liquor. This is what we call *rough* or *native Borax*, and is in rude irregular Masses, very foul, earthy and fattish, of a greenish Colour, and a disagreeable Smell: But for Medicine and other Uses it is refin'd by a chymical Process, and when perfectly purified is clear and transparent like Rock-Crystal.—Borax is used in soldering and fusing of Metals, and by the Dyers to give a Gloss to Silks. In *Italy* the Ladies use it as a Cosmetic*; and with us it is of considerable Repute in Medicine, being in-

* *Cosmetic* is a Term used for any Preparation or Means employ'd to beautify the Face, and preserve or im-

prove the Complexion; as Ceruse, and the whole Tribe of Fucus's, Washes, cold Creams, Lip-Salves, &c.

cifive

cifive and aperient, and therefore effectual against Diseases proceeding from an Inspiffation of the Humours, and Obstructions thence arising. It is also of Service in promoting the *Menses*, and facilitating Delivery.

THE *Turquoise* or *Tarcois* Stone is found in several Parts of the East, but no where finer, or in greater Plenty, than in *Persia*. This Fossil, which from its beautiful Colour has been always accounted a Gem, is in reality no other than a Copper-Ore, and that far from one of the hardest Kind. It is found in the Fissures of Stones that contain Copper, either in single Knobs from the Size of a Pea to that of a Walnut, or in Clusters of these ranged Side by Side, and forming large flat Masses. Its Colour is a fine pale Blue, with some small Admixture of Green; and it is naturally of a smooth and polite Surface, so that it is often worn without any additional Polish. But there is another Sort of *Turquoise*, which is a quite different Substance from the former, being the Teeth or Bones of Animals, that have lain in the Earth in the Neighbourhood of Copper-Ore till they have been tinged by it with deep blue Spots and Veins, which, when the Bone is put into a gentle Fire, diffuse themselves through the whole Substance, and make it of a beautiful pale Blue*. The finer and more per-

* There are several Mines in *France*, and most of what of these *Turquoises* in are now worn are of this
fect

fect of either of these Kinds of the Turquoise are said by our Jewellers to be of the *old Rock*, and those that are less perfect and valuable, are call'd Turquoises of the *new Rock*; which Distinction we suppose proceeds from what *Tavernier* relates, of two Mines of those Names in *Persia*, the Stones found in the latter being much less esteem'd than those of the former.—The great Defect of all Turquoises is, that in Time they lose their blue Colour, and become green, and then cease to be of any Value; besides, they are easily counterfeited, and that so perfectly, that it is scarce possible to discover the Deceit*.

THE *Lapis Lazuli* found in *Persia* and other *Asiatic* Countries is the most esteem'd, though it is likewise to be met with in *Africa* and *America*, and also in *Europe*. This is fre-

Kind. An accurate Observer may often trace the Grain of Ivory even in the finest of them; for some Parts of the Streaks of the Bone having been harder than the rest, and receiv'd much less of the Colour, are easily distinguish'd by their whitish Cast. The heating of them, to diffuse the Blue through the whole Substance is a Matter of much Nicety, for some of these Turquoises require a greater Degree

of Heat to bring them to their Colour than others; and if the Heat be too intense, it will take the Colour quite away.

* Mr. *Hill* tells us that he wears in a Ring a Turquoise of his own making, from a hard Bone tinged with a Tincture of Copper in an Alkali, which is equal to many of the finest native Turquoises, and is allow'd by the Jewellers to be a Turquoise of the *old Rock*.

quently

quently call'd *Azure Stone*, being for the most part of a beautiful deep Sky-Blue, but always variegated with a white Matter, and adorn'd with Veins of a golden Colour. The yellow Veins are very bright and glossy, and the white have been usually taken for a Spar, but are really a debas'd Crystal. •It is found in irregular Masses, from the Size of a Nut, to that of a Man's Head, and is capable of a fine Polish, making when wrought a very beautiful Figure. It is yet more beautiful, when the golden Marcasite is dispersed over it in distinct Spots, and not in the Form of Veins, and when the white Matter is very pure and pellucid; in which State some Naturalists suppose it to be the *Sapphire* of the Ancients. Perhaps this Stone, like the *Turquoise*, is only an elegant Species of Copper-Ore; but be that as it will, it is polish'd and valued as a Gem, and is sometimes used in Medicine. The *Lapis Lazuli* of *Asia* likewise affords the Painters that fine Blue call'd *Ultramarine**, which never changes, whereas the

* This Blue is one of the richest and most valuable Colours used in Painting. It is prepared by calcining the *Lapis* in an Iron Pot or Crucible, then grinding it very fine on a Piece of Porphyry, and afterwards mixing it up with a Paste made of Wax, Pitch, Mastich,

Oil, and Turpentine. This Paste must be wash'd well in clear Water, to separate the colouring Part from the rest, which precipitates to the Bottom in Form of a subtil, beautiful, blue Powder. The Water is then pour'd off, and the Powder at Bottom dried in the Sun, which is the

German is apt to turn to a greenish Colour. The *Asiatic* Stone will also bear the Fire, which those will not do that are found in *Europe*.

VEGETABLES.

OF the vegetable Productions of *Persia* none deserves our Attention more than the *Palm* or *Date-Tree*, which indeed is not peculiar to *Persia*, but grows in *Egypt*, *Barbary*, and other warm Countries. This Tree runs up very high in one Stem, which is seldom more than a Foot in Diameter, though sometimes they are much thicker. The Wood is porous, and that which is most solid has a coarse Grain; but its greatest Singularity is, that the Heart of the Tree is softest, the outer Parts being most hard and durable. From the Boughs, as the Tree grows up, issue a great Number of small Fibres, which cross one another like Net-work, and of these the People make Cords, and Brushes for their

true Ultramarine. Those who prepare this Colour have usually four Kinds, obtain'd by so many different Lotions, the first of which is best, and sometimes so fine as to be sold for eleven Pounds Sterling *per* Ounce; whereas the last Sort may be had for about twelve or fifteen Shillings. The common *Dutch* Ultramarine is a

less valuable Kind, being only *Lapis* or Smalt well ground and pulverized.— It is said the Method of making this Colour was first discover'd in *England*, and that a Member of the *East-India* Company, having a Quarrel with his Associates, to be revenged of them made the Secret publick.

Cloaths.

Cloaths. Of the Leaves they make Baskets, Besoms, &c. and of the Branches all Sorts of Cage-Work, and Boxes to pack up Goods in. The Palm-tree, as Dr. *Shaw* informs us, is chiefly propagated from young Shoots taken from the Roots of full-grown Trees, which, if well transplanted and taken care of, will yield Fruit in six or seven Years; whereas those which are rais'd immediately from the Stone will not bear till about their sixteenth Year. About thirty Years after Transplantation the Tree is in its greatest Vigour, and continues so for seventy Years longer, bearing Clusters of Dates weighing fifteen or twenty Pounds; but from that Period it gradually decays, and usually falls towards the End of its second Century. The Date or Fruit of this Tree is in a Sort of Sheath, which opens as it grows; and it is remarkable, that the Male Tree bears large Clusters, full of a whitish *Farina*, with which the young Fruit of the Female must be impregnated, or it never comes to Perfection. This is done in *Persia* (according to M. *Thevenot*) by taking two or three Blossoms of the male Cluster, and inserting them in the Sheath of the female; and Dr. *Shaw* tells us, that in the Kingdoms of *Algiers* and *Tunis* they use the same Method: But in *Egypt* they take a whole Cluster of the male Tree, and sprinkle the *Farina* of it over several Clusters of the other.—As to the Fruit or Dates themselves, they are usually round, longish, and yellow, but fre-

quently reddish on one Side, of a pleasant sweet mucilaginous Taste, having a hard Stone with a Chink or Furrow running its whole Length, inclosed in a thin white Pellicle. They are of various Sizes, and are brought to us from different Countries, but those from *Persia* exceed all others in Largeness, Taste, and Colour.—Dates are frequently used in Medicine, being good against Spitting of Blood, Diarrhœas, and all Disorders of the Reins and Bladder. They are of Service in stopping immoderate Discharges of the *Menses*, and procuring a Retention of the *Fœtus*; and they are proper in Coughs, Hoarseness, and Pleurifies. A Decoction of them is often used to promote the Eruption of the Small-Pox. But after all, they are difficult of Digestion, cause Pains in the Head, and occasion Obstructions in the *Viscera*; for which Reason those who feed much upon Dates become scorbutic, and lose their Teeth betimes.

THE *Pistachio* or *Pistach Nut* is also the Product of a Kind of *Terebinthus* or Turpentine-Tree, growing in *Persia* and other Eastern Countries. This Fruit, with no other Covering but its Shell, resembles a small Nut; but when wrapt in all its Coats, it is of the Size of a green Almond. The Kernel is red without, and green within, and its Taste very agreeable. These Nuts are used in Ragouts, comfited, made into Conserves, &c. and being heating, moistening, attenuant, and aperitive, they are
of

of some Service in Medicine. They are principally used in Stuffings of the Lungs and Obstructions of the Liver; they strengthen the Stomach, repress a Nausea and Vomiting, excite an Appetite, and afford good Nutriment.

FROM these Productions of the Land let us proceed to consider a marine Vegetable, namely *Coral*, which grows plentifully in the *Persian Gulf*. The Ancients took Coral to be a Stone, but most of the Moderns rank it among the Number of Sea-Plants; and this Opinion is now so well establish'd, that all other Sentiments seem almost precluded. *M. Tournefort*, that able Botanist, maintains that it multiplies by Seed, though neither its Flower nor Seed be known; but the Count *de Marfigli* has discover'd some Parts therein, which seem to serve the Purpose of Seeds and Flowers. Allowing Coral then to be a Plant, it has, in that Quality, a Root, whereby it is fasten'd to the Rock on which it grows. These Roots are cover'd with a Bark full of starry Pores, which traverse them from Top to Bottom. A little way from the Root the Plant is divided into small Branches having white Streaks therein, which seem to represent a Kind of Fibres. The Extremities of the Branches are softish, and rounded into little Knobs, commonly divided into six Cells, fill'd with a fattish milky Humour, sharp and astringent. And that nothing may be wanting to constitute a real Plant, these round Tumours are esteem'd a Kind of Pods, contain-

ing the Seed of the Coral; for it is said, that wherever the inclosed Juice happens to be shed, and meets with a hard Body to fix on, it carries Fecundity along with it, and produces a Coral-Plant; whence it is, that in the Cabinets of the Curious we find some of it on dead Men's Skulls, Pieces of earthen Ware, and other Kinds of solid Bodies, which Chance has thrown in the Way of the scatter'd Seed. It seems a Confirmation of this, that the Foot or Root of Coral takes the exact Form of the Solid it grows to, and even covers it, like a Plate, to a certain Extent, which shews that it was originally a fluid Substance; and we sometimes find the same Substance lining the Inside of a Shell, which it could never have enter'd but in a fluid Form.—Coral usually grows in the Caverns or on the prominent Parts of Rocks at the Bottom of the Sea, but it vegetates the contrary Way to all other Plants, the Root adhering to the Top of the Cavern, and the Branches shooting downwards. Hence an Objection naturally arises against the Hypothesis that Coral is propagated by Seed; for as it grows with its Head downwards, the Seed, if it bears any, must, when come to Maturity, fall to the Bottom of the Cavern. How comes it then, that this Plant never grows at the Bottom, where the Seed falls, but always on the Sides or Tops of the Clefts in Rocks, whither it cannot be carried? To which it may be answer'd, that the Seed of Coral is probably so
very

very fine as to be lighter than the Water, in which it may likewise be buoy'd up by the milky Juice that surrounds it, which is of an unctuous Nature. The Consequence of this is, that those Seeds which rise to the Surface of the Water, and there swim about at random, perish and come to nothing; whereas those which meet with Crevices and Vaults of Rocks in their Way, to fasten themselves unto, unfold their Tunics, and flourish into a little Tree.—Upon a nice Examination of the several Parts of Coral, the Count *de Marfigli* concludes, that all its Organism, with regard to Vegetation, consists in its Rind*; that the Tu-

* We have already taken some Notice of the Mechanism of marine Plants in *Pag.* 274 of this Volume; to which we may add, that Vegetables in general are endued with no other Parts than are necessary to their Subsistence. As the terrestrial Plants were made to live on those Juices which pervade the Pores of the Earth, or fluctuate in the Air, they are accordingly provided with Roots, Fibres, and capillary Vessels, to attract the Water out of the Ground, and with Branches and Leaves to imbibe the Moisture of the Atmosphere;

whereas the marine Plants, which find in the Waters all that is necessary for their Vegetation, have no Occasion for large Roots to supply them with the Juices of the Earth, being nourish'd without their Assistance. In a Word, whether we allow Coral and such-like Substances the Name of Plants or no, we must acknowledge them to be regular Productions, which keep up the Continuation of their Species, and in which Chance has no more Share than it has in the Propagation of Flowers and Fruits upon the Land: And though the

bules

bules of this Rind filtrate a Juice which fills the little Cells, and runs along the Canals to the Extremities of the Branches; and that this Juice being petrified, both in the Cells encompassing the coralline Substance, and in those of the Ends of the Branches whose Substance is not yet form'd, makes the Plant grow and increase in its Dimensions.

THERE are three Kinds of Coral, *white, red,* and *black*, the first of which is rarest and most esteem'd, but the red is commonly used in Medicine. It is drying, cooling, and astringent, sweetens the Blood, frees the Stomach from acid Juices, strengthens the Liver, and stops Fluxes. Some also attribute to Coral the immediate stopping of Blood, the promoting of Dentition, the securing of Houses from Thunderbolts, and the driving away of evil Spirits. It is added, that Coral appears redder when

Body of Water that covers them conceals from us the Manner of their Operation, the different Steps of their Growth and Progress, and the particular Uses for which they are appointed; yet Reason can so far penetrate into the Mysteries of Nature, as to discern in those Things that are in a great measure hidden from us, as well as in those that are fully discover'd to us, fresh Proofs

of an infinite Wisdom displaying itself in the Order and Oeconomy of the whole Universe, and making a liberal Provision for the Inhabitants of the Water as well as those of the Land; and, in short, of a Providence that has so constituted and disposed every Part of Nature, as to make it most effectually conduce to the Benefit of Mankind.

worn on a Man than on a Woman; that it becomes livid and pale when worn by a sick Person; and that the Changes in the Plant correspond with those of the Disease. But these and other whimsical Notions of the same Kind want no Confutation.—The chief Use we know of Coral is in Chaplets, Beads, and other Toys.

THE Time of the Coral Fishery (for so it is call'd) is from *April* to *July*; and the principal Places for it, besides the *Persian* Gulf, are the *Red Sea*, and some Parts of the *Mediterranean*, both on the Coasts of *Africa* and *Europe*. The Method of fishing is nearly the same in all Places, and is as follows. Seven or eight Men go in a Boat, provided with a Machine to tear up the Coral from the Rocks, which is composed of two Pieces of Wood crossing each other at right Angles, with a leaden Weight at the Centre to sink them, and a strong Net at each End to entangle the Coral, besides a Quantity of Hemp loosely twisted. This is let down into the Sea by a Rope, and being moved along the Sides of the Rocks, the Coral growing on the prominent Parts is embarrass'd amongst the Nets and Hemp, and is drawn up by the Fishermen, who, by the sudden breaking of the Rope, are sometimes in Danger of drowning. Thus much for the vegetable Productions of *Persia*; our next Step is to take a View of some of its Animals.

ANIMALS.

ANIMALS.

THE Horses of *Persia* are the finest in all the East, (except those of *Arabia*) being taller than the *English* Saddle-Horses, exactly proportion'd, very light and sprightly, and excellent Travellers. To say nothing of their Camels and Mules, which are of wonderful Service, they have a Breed of *Arabian* Asses, the best in the World. These have smooth shining Hair, carry their Heads high, are light and nimble, and move gracefully along. These do not carry Burdens, like the common dull Asses of the Country, but are kept for riding, and are so much valued, that some of them are sold for above thirty Pounds Sterling, and none tolerably good are to be had under twenty. The *Persian* Oxen have a sharp-pointed Bunch on the Back near the Neck, and the Country-People make use of them to ride upon, as well as to carry Burdens.

In general it may be said, that wild Beasts are not very common in *Persia*, because there are few Forests; but in the Province of *Tabristan*, the ancient *Hyrkania*, which is full of Woods, there are abundance of Wild Boars, Tigers, Leopards, Bears, Jackals, and other Animals. Sir *John Chardin* tells us of a frightful Bird, about an Ell long, with a rough Skin, and as hard as that of a Sea-Dog, which is sometimes said to fall on Men and kill them; but
we

we think no great Notice is to be taken of such uncertain Accounts. M. *Thevenot* says there are large black Scorpions in *Persia*, which are so venomous, that those who are stung by them die in a few Hours; and the same Traveller mentions a certain square-bodied Worm, longer and smaller than a Caterpillar, with a great Number of Feet, whose Bite is dangerous, and in some Cases mortal.

THE *Antelope*, according to M. *Thevenot*, is a Creature very common in *Persia*. It is shaped like a Deer, has fine large black Eyes, a long slender Neck, and his Horns grow almost strait up from his Head, tapering gradually with Rings at equal Distances from each other. This Beast is remarkable for its Swiftnefs, on which Account it is said to be seldom taken alive; but our *French* Traveller, if he means the same Animal, does not seem to represent the taking of it as such a difficult Matter. He tells us they have a Method of hunting the Antelope with a Creature call'd an *Ounce*, which is brought from *Arabia*, and is train'd up for that Purpose. The Huntsman usually carries the Ounce behind him on horseback, having a Chain about his Neck, and keeping a Cloth before his Eyes till they discover an Antelope; upon which he pulls off the Cloth and Chain, and lets the Ounce go in Pursuit of his Prey. The Ounce having got Sight of the Antelope, creeps softly towards him on his Belly, hiding himself, if he can, behind the Hedges, till being come within
a little

a little Distance, he takes two or three great Leaps, and seizes the Antelope. If he happens to miss his Aim, he pursues no farther, and is so ashamed, that the Huntsmen have much ado to make him hunt any more that Day.— The *Persians* also train up Falcons to hunt the Antelope, having the stuff'd Skin or Figure of that Animal, on whose Nose they constantly feed the Falcons. Having spied an Antelope, they let fly two of these Falcons, one of which fastens just upon the Nose of the Creature, who endeavours to shake off his Enemy, whilst the Bird flutters to keep his Hold, which hinders the Antelope from running or seeing well before him. However, if he happen to disengage himself from his first Assailant, the Falcon that is aloft stoops and supplies the Place of the other, which immediately points up and keeps above, ready to succeed his Companion if he should be shaken off by the Antelope. Thus the Falcons harrahs the poor Animal, and hinder his running, till the Dogs come up, who soon make an End of the Diversion.

THOSE Parts of *Persia* which lie near *Arabia* are very much infested with *Locusts*, and therefore it seems not improper to give some Account of that Insect, especially as it serves for Food in these Eastern Parts of the World, and *Ludolfus* makes it probable that the Quails mention'd *Numb. xi. 31.* were nothing else than Locusts. The usual Size of this Creature is about two Inches and a half in Length, and in the

the *Abdomen* it has six or seven Incisures. It has a large brown Head, with two prominent lenticular Eyes, three Pair of Legs, taking their Origin from the *Thorax*, the hindermost Pair being thick at the Thighs and prickly. Its Wings are membranaceous, of an Ash-Colour inclining to a Red or Purple, with many brown Spots on them, and its Back is guarded as it were with Armour.—Our Readers undoubtedly remember the Ravages made last Year in *Europe* by Swarms of these Insects, some of which appear'd in *England*; but we have no where a better Account of them than what is given us by the *Sieur Beauplan* in his History of the *Ukraine*, and by *Sir Hans Sloane* in his *Natural History of Jamaica*. Colonel *Needham*, says *Sir Hans*, who had liv'd some Time in *Teneriffe*, inform'd me, that the Locusts destroy'd all the Product of that Island. They came from the Coast of *Barbary*, and having flown as far as they were able, one of them alighted in the Sea, and another upon that, so that one after another they made a Heap as big as the greatest Ship above Water, and were thought to be as many under. Those above Water, after the Sun had refresh'd them next Day, took Flight again, and came in Clouds to the Island, where the Soldiers were got together to the Number of seven or eight thousand, who laying aside their Arms, some took Bags, some Spades, dug Trenches, and cover'd the Insects with Mould. Their Labour however had not the

intended Effect, for many of the Locusts escaped, and being revived by the Sun did great Damage to the Vineyards. In short, they staid there four Months, the Cattle eat them and died, and so did several Men, and others struck out in Blotches.

THE *Sieur Beauplan* tells us, that he has observ'd Swarms of Locusts several Years one after another, which extended five or six Leagues in Length, and two or three in Breadth, being driven by a South-East Wind into the *Ukraine*, where they did abundance of Mischief, and caused a great Scarcity of Provisions. In the Month of *October* they die, after laying at least three hundred Eggs apiece, which are hatch'd the following Spring, if the Weather proves dry, but Rains at that Season contribute much to destroy them. It is not easy to express their Numbers, which are such that they darken the Air, and when they alight upon the Ground it appears quite cover'd with them. Our Author once saw such a Multitude of them that they fill'd the Houses, Stables, Barns, &c. and he could not see to eat in his Chamber without a Candle. He fired Gunpowder and Brimstone to expel them, but all to no Purpose, for when the Door was open'd an infinite Number rush'd in, and it was troublesome walking abroad to be hit by these Insects, sometimes on the Nose, sometimes on the Eyes, sometimes on the Cheeks, &c. and there was no opening one's Mouth but some would get in, so that even at Meals



Meals they had no Respite. The same Gentleman has seen them lying in the Roads one upon another to the Depth of four Inches, so that the Horses would not trample over them without much lashing, pricking up their Ears, snorting, and treading very fearfully. The Feet of the Horses and the Wheels of the Carriages bruising these Creatures occasion'd such a Stink as not only offended the Nose but the Brain; to remedy which a Handkerchief dipped in Vinegar, and held to the Nostrils, was found of Service.— After the Locusts are hatch'd, it is about six Weeks before they can fly, but as soon as they can use their Wings, they travel wherever the Wind carries them; so that they are sometimes driven into the Sea, where they all perish.

THE Locust that appear'd amongst us in 1748 nearly resembled a Grasshopper in Form, but was more robust, of a different Colour, with four large Wings, like those of the Horse-finger. They were brown and transparent, divided into Panes by a small black Line, and their Texture was very elastic. The Wings of one of them, whose Body was two Inches and a half in Length, measured five Inches when extended; and some were taken of a larger Size. The Body of the Insect was scaly, its Head large, its Face streak'd with Brown and White, and its Eyes of a Hazle-Colour. Its Jaws open'd and shut horizontally, and were of a black, hard, horny Substance, not keen but blunt, and meeting with great Exactness.

The Tongue was like a small *French Bean*, and over the Jaws it had a Covering, which it could contract at pleasure, or put forth from its Mouth to a considerable Distance. This thin Substance is probably of Use to the Creature in drawing towards it Blades of Grass, or whatever else it eats that is of a yielding Nature.—Many People have imagined the last Year's Locust to be only our large Grasshopper; but this is a great Mistake, the Grasshopper being of a fine Green, with a long Horn at the Tail, and seldom to be seen more than one at a time. In short, upon comparing the Insect with the Figure of the common Locust of *Barbary* given us by Dr. *Shaw*, they seem to be the same, or at least to have no very material Difference*.

UNDER the Article of *Vegetables* we have given an Account of the Coral-Fishery in the *Persian Gulf*, and now we are speaking of *Animals* it is proper to take notice of that of Pearls, for which that Part of the Sea has always been celebrated. Pearl is a hard, white, shining Body, usually roundish, found in a Shell-Fish resembling an Oyster, and rank'd in the Number of Gems or precious Stones. The Forma-

* As to the Etymology of the Word *Locust*, we are obliged to our Correspondent for the Hint given us, but chuse to omit it, as being a Matter entirely uncertain. What he farther de-

fires will be taken notice of in its proper Place; and as to *Birds of Passage*, he may find the Subject largely handled in Page 5, &c. of this Volume.

tion

tion of Pearls has puzzled both ancient and modern Naturalists, and has given Occasion to several extravagant Hypotheses. *Pliny, Solinus*, and others of the Ancients, supposed them form'd of the Dew, which (say they) the Fish rises every Morning to the Surface of the Water, and opens its Shell to imbibe; but this is manifestly false, the Pearl-Oysters growing fast to the Rocks, and never rising to the Surface. Others will have Pearls to be the Eggs of the Fishes that produce them, but this does not consist with the Phænomena; for they are found through the whole Substance of the Oyster, in the Head, the Coat that covers it, the Stomach, and in general in all the fleshy and musculous Parts; so that there is no Reason to think that Pearls should be in Oysters what Eggs and Spawn are in Fowls and Fishes. This indeed may be said, that as in a Hen there is a Multitude of little Eggs in Form of Seed, some whereof grow and ripen whilst the rest continue nearly in the same State, so in each Oyster one Pearl is usually found larger than the rest, and which ripens faster than the others; and sometimes this grows so large as to hinder the Oyster from shutting, in which Case the Fish rots and dies.

In the Memoirs of the *French Academy* M. *Reaumur* has a very curious Piece on the Formation both of Shells and Pearls, where he observes, that Pearls are form'd like Stones in other Animals, as those of the Bladder, Kid-

neys, &c. and that they are apparently the Effects of a Disease in the Fish, deriving their Origin from a Juice extravasated out of some broken Vessels, and detain'd and fix'd among the Membranes. To evince the Possibility of this, he shews that the Shells of Sea-Fishes, as well as those of Snails, &c. are wholly form'd of a glutinous stony Matter, ouzing out of the Body of the Animal; and therefore it is no Wonder that such Animals as have Vessels containing a sufficient Quantity of stony Matter to build and extend a Shell, should have enough to form Stones, in case the Juice destined for the Growth of the Shell should happen to overflow, and burst forth in any Cavity of the Body, or among the Membranes. To confirm this System he observes, that the inner Surface of the common Pearl Muscle is of a Mother-of-Pearl Colour in one Part, and reddish in another; and the Pearls found in this Fish are likewise of two Colours, exactly corresponding with those of the Shell; which shews, that in the same Place wherein the Transpiration of a certain Juice had form'd a Coat or Layer of Shell of a certain Colour, the Vessels which convey'd that Juice being broke, a little Mass or Collection of it is form'd, and hardening becomes a Pearl of the same Colour with that Part of the Shell to which it corresponds.

THE Perfection of Pearls, whether round, in Form of Pears or Olives, or irregular, consists chiefly in the Lustre or Clearness of the Colour,

lour*, which is call'd the *Water*. The white ones are most esteem'd in *Europe*, but some of the *Indians* and *Arabs* prefer those which border on the Yellow. Some are of a Lead-Colour, others blackish, but all are liable to change in wearing, especially the white ones, which turn yellow in forty or fifty Years time, and are of little Value. Pearls have this Advantage over precious Stones dug out of the Rocks, that the latter owe their Lustre to the Industry of Men, but the former are born with that beautiful Water which gives them their Value; they are found perfectly polish'd in the Abysses of the Sea, and Nature has put the last Hand to them ere they are separated from their Mother.

It is to be observ'd, that what we call *Mother of Pearl* is not the Shell of the Pearl-Oyster, but of another Fish of the Oyster Kind, call'd *Auris marina*, or the *Naker*. The Inside of this Shell is very smooth and polish'd, and of the Whiteness and Water of Pearl itself, together with a delightful Mixture of Red, Blue, and Green; and its Outside has the same Lustre after the first Leaves have been clear'd off by *Aqua fortis* and the Lapidary's Drill.—Wens of Pearl are certain Excrescences in Form of Half-Pearls, sometimes found in the Bottoms

* The Size, as well as the Water, makes a great Difference in the Value of Pearls. That mention'd by *Tavernier*, in the Hands of an Em-

peror of *Persia*, in 1633, was bought of an *Arab* for 32,000 Tomans, which, at 3*l.* 9*s.* the Toman, amounts to 110,400 *l.* Sterling.

of the Pearl-Shells, which the Lapidaries have the Skill to saw off and join together, and use them in several Works of Jewelry.*

ONE of the most noted Pearl Fisheries (as we have already hinted) is in the *Persian* Gulf, and particularly near the Island of *Babarem*, but there are several others in the *Indian* Seas, as well as those of *America*. Nay, they are sometimes taken on the Coast of *Scotland*, and in other Parts of *Europe*; but these are not comparable to those found near the *Persian* Coast, or in any of the *Indian* Fisheries. There are two Seasons of fishing for Pearls, the first

* There is a curious Method of making counterfeit Pearls, which is owing to the *Sieur Janin*, and seems worthy to be described. This Artift having observ'd, that the Scales of the little Fish call'd the *Bleak* had not only all the Lustre of the real Pearl, but that after beating them to Powder in Water they return'd to their former Brilliant upon drying, he bethought of setting a little Mass thereof in the Cavity of a Bead, made of a Kind of Opal or Glass which had likewise a pearly Colour. For this Purpose he made use of a Glass Tube about six Inches long, sharp at one End and somewhat

crooked, through which he blow'd a Drop of the Matter into the Bead, and to spread it equally throughout the inner Circumference he shook it gently a long time in a Basket lined with Paper. The pulverized Scales, fasten'd by this Motion to the Inside of the Bead, resume their Lustre as they dry, and nothing remains but to stop up the Aperture, which is done by melted Wax, convey'd into it with a Tube like that used in introducing the dissolved Scales. The superfluous Wax being clear'd away, the Beads are perforated and strung, and so commence Necklaces.

in *March* and *April*, the second in *August* and *September*, and during these Seasons there appear about the above mention'd Island some hundreds of Fishermen's Barks, nay, two or three thousand, if M. *Thevenot* was rightly inform'd. Each of these Barks is provided with one or two Divers, who perform Feats that are almost incredible. When the Barks have cast Anchor, which they commonly do in about five Fathom Water, the Diver binds a heavy Stone under his Body, which is to serve him as Ballast, to prevent his being driven away with the Motion of the Sea, and enable him to walk more steadily. Besides this he ties another Stone to one Foot, which makes him sink to the Bottom in a Moment; and he carries down with him a large Net in manner of a Sack, which is tied to his Neck by a Cord, whereof one End is fasten'd to the Side of the Vessel. This Sack is intended for the Reception of the Oysters gather'd from the Rocks, and the Rope is to pull up the Diver when his Bag is full, or he wants to take Breath. To prevent his Hands being wounded by the Rocks or Shells, he wears leathern Mittens; and thus equipp'd he precipitates himself to the Bottom, where he makes the best Use of his Time in tearing off the Oysters he meets withal, and cramming them into his Budget. When he finds himself straiten'd, he gives the Rope a Pull, and holding fast by both Hands the People in the Bark draw him up, and unload him of his Fish,
which

which are sometimes five hundred Oysters, sometimes not above fifty. The best Divers, it is said, will keep under Water for half an Hour, and few of them less than a Quarter; and this violent Exercise they continue many Hours without Intermiſſion*. The Water is usually very clear, so that the Diver can easily see what he is about; but to prevent his being seen by ravenous Fishes, he sometimes makes the Water muddy; notwithstanding which the Divers now and then fall a Prey to these Monsters of the Deep, and of all the Perils attending the Pearl-Fishery, this is one of the greatest and most usual.

* We shall not pretend to vouch for the Truth of all that is related concerning these Divers, especially that Particular of their continuing so long under Water. Some Divers help themselves by carrying down Sponges dipp'd in Oil in their Mouths; but considering the small Quantity of Air that can be contain'd in the Pores of a Sponge, and how much that little will be contracted by the Pressure of the incumbent Air, such a Supply cannot long subsist the Diver; it being found by Experiment, that a Gallon of Air included in a

Bladder, and by a Pipe reciprocally inspired and expired by the Lungs, becomes unfit for Respiration in little more than a Minute; for though its Elasticity be not much alter'd in passing the Lungs, yet it loses its vivifying Spirit. In effect, Dr. *Halley* assures us, that a naked Diver cannot remain above two Minutes under Water without a Sponge, nor much longer with one; nay, without much Practice, not near so long, Persons not used to diving beginning to stifle in about half a Minute. Besides, if the Depth be con-

THE

THE Barks unload their Oysters on the Shore, and lay them in a great Number of little Pits, dug four or five Feet square, raising Heaps of Sand over them the Height of a Man, which at a Distance look like an Army ranged in Battle. In this Condition they are left till the Rain, Wind, and Sun have obliged them to open, which soon kills them, the Flesh rots and dries, and the Pearls, thus disengaged, tumble into the Pit upon taking out the Oysters. The Pits being clear'd of the grosser Filth, the Sand is several times sifted to separate the Pearls; but notwithstanding all their Care, they lose a great many. When the Pearls are dried

siderable, the Pressure of the Water on the Vessels makes the Eyes blood shotten, and frequently occasions a Spitting of Blood. Hence some have contrived double flexible Pipes, to circulate Air down into a Cavity inclosing the Diver as with Armour, so that his Breast might have Room to dilate upon Inspiration; the fresh Air being forced down one of the Pipes by Bellows, and returning by the other, not unlike a Vein and Artery. But, when the Depth exceeds three Fathoms, this Method is found impracticable, the Water obstructing the

Circulation of the Blood in the Limbs, and pressing so strongly on the Junctures where the Armour is made tight with Leather, that if there be the least Defect in any of them, it instantly rushes in and fills the whole Machine, to the great Danger of the Diver's Life.

The *Diving-Bell* is an Engine contrived to remedy these Inconveniencies, wherein the Diver is safely conveyed to any reasonable Depth of Water, and many stay there more or less Time, according as the Bell is greater or less. The latest Improvements in the Diving-

and

and sifted, they are pass'd through a Sieve according to their Sizes ; and the smallest are sold for *Seed of Pearls*, and the rest by Auction to the highest Bidder.

WE hope the Reader will not think he has been too long detain'd upon a Subject that makes so curious a Part of Natural History ; but we are now going to shift the Scene, and present to his View some of the Works of Art, in a Description of several of the most magnificent Structures in the *Persian Empire*.

Bell have been made by our ingenious Countryman Dr. *Halley*, and Mr. *Trie-wald* of *Stockholm*. The Doctor's Bell was three Feet wide at Top, five Feet at Bottom, and eight Feet high, containing about sixty-three cubic Feet, or near eight Hogheads, in its Concavity. This was coated externally with Lead, so heavy that it would sink empty, and a Weight distributed about its Bottom to make it descend perpendicularly and no otherwise. In the Top was fix'd a strong clear Glass to let in the Light from above, and a Cock to let out the hot Air. Below was a circular Seat for the Divers to sit on,

and from the Bottom was hung by three Ropes a Stage for them to stand on to do their Business. This Machine was suspended from the Mast of a Ship by a Sprit, which was sufficiently secured by Stays, and directed by Braces to carry it over-board clear of the Ship, and bring it in again. To supply the Bell with Air when under Water, there were two Barrels, holding each thirty six Gallons, and cas'd with Lead to make them sink empty. These had a Hole in the Bottom to let in the Water according as the Air was condensed in their Descent, and to let it out again when they were drawn up from below. In

BUILD-

BUILDINGS.

IF we look into *Ispahan*, the Capital of *Persia*, we are charm'd there with the *Royal Square*, which Travellers in general represent as one of the finest in the World. According to *Sir John Chardin* it is 440 Paces in Length, and 160 in Breadth, but *M. Thevenot* makes its Length 700 Paces and its Breadth two or three hundred. The Houses round this Square are all of the same Height, and built in the same Manner, so that nothing can be more regular; and about twenty Paces from the Buildings

the Top of the Barrels was another Hole, to which was fix'd a leathern Pipe or Hose, long enough to hang below the Hole at the Bottom, being kept down by a Weight appended; so that the Air driven by the Water to the upper Part of the Barrels could not escape, unless the lower End of these Pipes were first lifted up. These Air-Barrels were fitted with Tackle, so as to rise and fall alternately, like two Buckets; and were directed in their Descent by Lines fasten'd to the under Edge of the Bell, so that they came readily to the

Hand of a Man standing on the Stage to receive them, who lifting up the Ends of the Pipes above the Surface of the Water in the Barrels, all the Air included in the upper Part thereof was driven into the Bell, the Water taking its Place. One Barrel being thus emptied of Air was drawn up upon a Signal given, and the other let down to be ready for Use; by which Method fresh Air was furnish'd so plentifully, that the Doctor tells us he himself was one of five who were together at the Bottom in nine or ten Fathoms Water, for above an

there is a fine Canal of Spring Water, made by *Shah Abbas* the First, who, for its greater Embellishment, caused the intermediate Space between the Canal and the Houses to be planted

Hour and a half, without any ill Consequence, and might have continued there as long as they pleased for any thing that appear'd to the contrary. All the Precaution the Doctor observed was to be let down gradually, about two Fathoms at a time, and then to stop and drive out the Water that had enter'd, by letting in three or four Barrels of fresh Air; and being arrived at the intended Depth, he let out as much of the hot Air as the Barrels would replace with cold, by turning the Cock at the Top of the Bell, through whose Aperture, though very small, the Air would rush out so strongly, as to make the Sea boil at the Surface. The only Inconvenience People complain of in descending is a small Pain in the Ears, as if the End of a Quill were forcibly thrust into them, which alternately abates and returns till they are got to the Bottom, where the Air

continues of an equal Density. By this means the Doctor found he could lay the Bottom of the Sea, just within the Compass of the Bell, so far dry, as not to be over Shoes thereon; and the Glass admitted so much Light when the Sun shone, and the Sea was clear and even, that he could see perfectly well to write and read, and by the Return of the Air-Barrels could send up Orders written with an Iron Pen on small Pieces of Lead, directing how he would be moved from Place to Place. At other Times, when the Water was rough and troubled, it would be as dark as Night below; but then a Candle might be kept burning in the Bell, which was found by Experiment to consume much the same Quantity of confined Air as a Man does, *viz.* about a Gallon in a Minute.—This Bell was so far improved by the Doctor, that a Diver might be detach'd from it

with

with Plane-Trees, which in Summer afford a most delightful Shade. This Canal is lined with Bricks, and has a Border of black Stone on each Side, rais'd a Foot higher than the

to the Distance of eighty or a hundred Yards, by means of a Cap or Head-piece, somewhat like an inverted Hand-basket, with a Glass in the fore Part that he might see his Way. This Cap was of Lead, made to fit quite close to the Shoulders, and in the Top of it was fix'd a flexible Pipe, communicating with the Bell, by which he had Air when he wanted, and which being coil'd round his Arm served as a Clue to direct him back again to the Bell.

After this, one would think little or nothing was wanting to the Perfection of Diving; but M. *Triswald* observing, that Dr. *Halley's* ingenious Invention could not be made use of without considerable Charge, it requiring a large Vessel and a Number of Hands to work and manage the Machine, bethought himself of a lesser Bell somewhat different in Form, which might easily be managed by two Hands,

and yet answer all the Purposes of the Doctor's. It is true, a Man in a large Bell has more Air than in a less, and consequently should be able to subsist longer on a large than on a small Quantity; but in M. *Triswald's* Bell the Stage is suspended at such a Distance from the Bottom, that when the Diver stands upright his Head is but just above the Water, where the Air is cooler and fitter for Respiration than towards the Top of the Bell: And yet when there is Occasion for the Diver to be wholly in the Bell, and his Head of course in the upper Part, it is so contrived, that when he has breath'd the hot Air as long as he well can, he may then draw the cooler and fresher Air from the lower Part, by means of a spiral Copper Tube placed close to the Inside of the Bell, to the upper End of which Tube is fix'd a flexible one of Leather, and to the End of that

Ground, and so broad that four Men may walk upon it a-breast. At the South End of this Square is the Royal Mosque, built in Form of

an Ivory Mouth-piece, which the Diver holds in his Mouth, and respires the fresh Air from below; and this he may do in any Posture, as standing, sitting, bowing his Body, &c. This Contrivance is the better, as it occasions a Circulation so necessary to the very Being of Air, and its Preservation for the Use of Animals.

It must be acknowledged that the Diving-Bell, with these late Improvements, is a very curious Machine; and yet it seems to have been outdone in some Respects by an Invention of the famous *Cornelius Drebell* (whom we have heretofore mention'd) if all be true that we are told concerning it. He contrived not only a Vessel to be row'd under Water, but also a Liquor that would supply the Want of fresh Air. The Vessel was made for King *James the First*, and carried twelve Rowers besides the Passengers. It was tried in the River *Thames*, and one of the Persons who was in the

Vessel when the Experiment was made, told it to another who gave an Account of it to the ingenious *Mr. Boyle*. As to the Liquor, *Mr. Boyle* assures us, he discover'd by a Physician who married *Drebell's* Daughter, that it was used as Occasion required when the Air in the submarine Boat was clogg'd by the Breath of the Company, and render'd unfit for Respiration; at which Time, by unstopping a Vessel full of this Liquor, he could presently restore to the troubled Air such a Quantity of vital Parts, as made it useful again for a considerable Time. The Secret of this Liquor *Drebell* would never disclose to more than one Person, who communicated the Preparation to *Mr. Boyle*; from whose *Exp. Phys. Mech. of the Spring of the Air* *Dr. Derham* has related this Story, but much questions whether the Virtues of the Liquor were so effectual as reported.

a Pen-

a Pentagon, with a large Court before it, and a Portico round it adorn'd with a vast Profusion of Gold and Azure, the Whole inlaid with enamell'd Squares, and having a Frize round it, on which are written several Passages of the *Koran* in large golden Letters. Going through this noble Portico, we come to a beautiful Basin of Jasper, supported by a Pedestal of the same Stone eight Feet high, with Steps to it to come at the Water. The Dome of the Mosque is one of the finest Pieces of *Persian* Architecture, and is so high that it may be seen at a great Distance.

THE Royal Palace is certainly one of the most spacious in the World, being near a League and half in Circumference. Its grand Portico is on the West Side of the Square above-mention'd, is very lofty, and all of Porphyry. The Threshold at the Entrance is of a greenish Marble, about five or six Inches high, which the *Persians* revere as sacred, so that they always step over it, and whoever dared to step upon it would be punish'd. The Gate is also esteem'd sacred, and those who have receiv'd any Favour from the Emperor, go and kiss it with great Solemnity, praying aloud for the Prosperity of their Prince; and the Emperor himself, out of Respect, never goes through this Gate on horseback. A few Steps beyond the Portico there are two large Halls, in one of which the President of the Divan administers Justice, and the other belongs to another great

Officer of State. On the Sides of these are two smaller Halls, which are call'd *Guard-Rooms*, as being design'd for that Use; but Sir *John Chardin* says there is no Guard kept there in the Day-time, and those placed to watch there in the Night sleep as quietly as in their own Houses. This Portico, the same Author tells us, is a sacred *Aflum*, from whence those who take Sanctuary there cannot be removed by any Person but the Emperor himself.—From the Portico a long Avenue leads us to many spacious Buildings, which serve for Warehouses and Shops, where all Sorts of Work are done for the Emperor's Household. On the Right Hand is the Royal Library, and adjoining to it is the great Wardrobe, consisting of several large Rooms or Halls. There are many other Halls, each destined to some particular Use, and all built much in the same manner. They all stand in the Middle of a Garden, are arched over, and on both Sides have a Row of Piazzas. Most of them have a large Bason of Water in the Middle, and the Walls are lined with Jasper eight Feet high from the Floor; from whence, to the very Center of the Arch, there is nothing to be seen but Niches, fill'd with a thousand different Figures that seem to be incrust'd into the Wall, and composed of Crystal, Agate, Amber, Porcelain, and other beautiful Materials.—Near these Warehouses stands the most sumptuous Structure in the whole Palace, consisting of a large Hall, raised five Feet
above

above the Level of the Garden, and whose Cieling, which is of Mosaic Work, is supported by eighteen Columns thirty Feet in Height, wreath'd and gilded. On each Side of this Hall there is another, but not so large, and a third behind it, which has a Cieling like the former. In the Middle of the great Hall are three Basons of white Marble, raised one above another in Form of a Pyramid, of which the lowest is square and ten Feet in Diameter, and the other two of an octogonal Figure. The King's Throne is placed under a Kind of Alcove, twelve Paces in Length, and eight in Breadth; and here he gives Audience to Foreign Ministers in the most pompous Manner. The Walls are adorn'd with Paintings representing the Battles of *Abas* the Great against the *Tartars*, and with *Moorish* Works in Gold and Azure.—There are two other large Apartments, each standing in a particular Garden, the one almost like that last described, and the other two Stories high, consisting of Chambers, Galleries, Balconies, &c. with Basons and Water-Spouts almost in every Room; and in these Apartments the King holds his Assemblies. The Walls that surround these Gardens are of Earth, ten or twelve Feet high, above which there is a Kind of Gallery used only by the King, through which he goes to other Parts of the Palace without being seen.

To the Women's Apartment, or *Haram*, (as the *Persians* call it) there are four large Avenues,

nues, one from the Royal Square, another opposite to that, a third near the Kitchens of the Palace, and a fourth which is enter'd by none but the King himself. The first Avenue is shut in by a high Portico, adjoining to which are three spacious Halls, the two first whereof the Officers of State may enter, but the third is accessible only to the Eunuchs. This Portico has Steps round it, on which the Eunuchs sit who are on Duty, ready to receive the Messages of those without, and carry them to those within; for all Eunuchs are not suffer'd to enter the innermost Parts of the *Haram*. After passing the Portico, one discovers the Gardens, which are planted with lofty Trees, and are of a vast Extent. We likewise see four large Buildings, in which are lodged the Princesses of the Royal Blood, and those Women who are presented to the King on account of their transcendent Beauty. All these Buildings have one Story above the Ground-Floor, and consist of so many Galleries, Chambers, Closets, &c. that they are perfect Labyrinths. They are beautifully gilt and painted, and may each of them be stiled a Palace; and beyond these Buildings are at least thirty other smaller ones, all in the same Line, which open into pleasant Gardens.—But we forbear any farther Description of the *Haram*, for the same Reason we gave in speaking of the Seraglio at *Constantinople*, namely, the Difficulty, not to say Impossibility, of a Traveller's gaining

ing Admittance into such prohibited Recesses, and consequently of giving any Account thereof but what is uncertain or entirely fabulous. Besides, it is generally observ'd, that there is not any Part of the World where the Women are so strictly guarded as in *Persia*; for which, among other Reasons, the *Persians* plead the Command of their Prophet *Mahomet* in his last Moments, who, it seems, was heard to say, *Take care of your Religion and your Wives*; and this they think is a sufficient Authority for keeping their Women immured within high Walls, as are those of the Royal *Haram* we have been describing.

THE Bridge at *Zulpha*, one of the Suburbs of *Ispahan*, is represented by *Tavernier* and *Thevenot* as one of the finest Structures in *Persia*. It is built of Brick with Edgings of Freestone, and is almost level, the Middle of it being not much higher than the Ends. It is above three hundred Paces in Length, and twenty in Breadth, and is supported by a great Number of low Stone Arches. On each Side there is a Gallery eight or nine Feet broad, which runs from one End to the other, raised several Steps above the Level of the Bridge, and having frequent Openings for the sake of Light, the fresh Air, and a Prospect of the River. If a Person desire a more open Passage, he may walk upon the Platform over these Galleries, but here the Passenger is so much exposed to the Heat of the Sun in Summer,

mer, that he generally chuses the cover'd Walk; which also many times serves for a Horse-Way in Winter, when the River overflows and fills the middle Way of the Bridge, which is designed for Horses. But what is most remarkable is another Passage when the Water is low in Summer, which is agreeable on account of its Coolness. This Way is almost even with the Bottom of the River, but there are Stones so placed that one may step over without wetting one's Shoes, and Openings through the Piers from one End of the Bridge to the other.

HAVING already given an Account of the Royal Mosque in *Ispahan*, we think it needless to describe any more of those Structures; but there is a sumptuous one at *Com*, where *Fatima*, *Mahomet's* Daughter, and two Kings are interr'd, which therefore seems to deserve some Notice. The Access to it is through four large spacious Courts, the first of which is a fine Garden, and the last is paved with transparent Marble, and surrounded with neat and beautiful Lodgings for the Priests. The Doors of the Mausoleum are plated with Silver, and the Tomb of *Fatima* is inclosed with a massy Grate of the same Metal. On each Side of it are the Tombs of *Abas I.* and *Sepbi I.*, two of the *Persian* Monarchs; and here the Priests are continually employ'd in reading the *Koran*, for which and other Services there is a vast Revenue belonging to this Mosque. Nothing can be imagined richer, neater, and more magnificent than

than this Edifice, and the Ornaments are answerable to the Structure.

To give the Reader some Idea of the *Caravansera's* or Inns of *Persia* and other Eastern Countries, it may not be amiss to describe the Royal one at *Casban*, which, according to Sir *John Chardin*, is the fairest not only in that City, but in the whole *Persian* Empire. It is a square Building, every Side of the Court or Area within being two hundred geometrical Paces. It has two Stories, with a Sort of Antichamber below, that runs the whole Length of two of the Fronts, rail'd about the Height of a Man above the Court, and four Inches lower than the Level of the Chamber. The second Story is contrived like that below, with a Balustrade four Feet high, that lets in the Light, and runs round the Structure. The Entrance is under a high and magnificent Portal, adorn'd with Mosaic Work, as is the rest of the Building; and in the Middle of the Court there is a fine Fountain. The hinder Part of this *Caravansera* consists of large Stables, Rooms for Servants and Luggage, Store-houses, and Lodgings for the Poor, and for the Country-People who bring their Goods to Market; and behind all there are large Gardens. The Founder of this magnificent *Caravansera* was *Abas* the Great; and adjoining to it stands the Royal Palace, and another design'd for the lodging of Embassadors, both erected at the Expence of the same Monarch.—It is to be observ'd, that
most

most of the Caravansera's in the Cities of *Persia* and *Turky* are built in this quadrangular Form, having Galleries running round them, into which the Chambers open, like many of our great Inns in *England*. In one Respect they resemble Monasteries, for they have a little Mosque belonging to them, and the Apartments are like the Cells in the Dormitories of Religious Houses. When a Merchant arrives at one of these Caravansera's, he has nothing to do but apply to the Director or Intendant of the House, who will assign him a Lodging and a Warehouse for his Goods, upon paying a small Piece of Money at his Entrance, and Two-pence or Three-pence a Day afterwards. As to Provisions, Candles, Fuel, and other Necessaries, they are brought to the Caravansera, and sold at an easy Rate.—But the Caravansera's built on the Roads are somewhat different from those in the Cities. These are often erected in dry, barren, desert Places, and some of them are furnish'd with Water from a great Distance, and at a vast Expence, there being no Caravansera without its Well or Cistern. As they are design'd for the Reception of Companies of Merchants travelling together, with their Camels, Mules, Merchandise, &c. they are always large Buildings, long or square, having the Appearance of a Barn, without any distinct Rooms or Partitions. All round the Inside, at the Foot of the Wall, runs a Kind of Elevation or rais'd Ground cover'd with flat Stones, about

about two Feet high and six broad, which serves Travellers both for a Bed and a Table, the open Space in the Middle being allotted to the Camels, Mules, and Horses. There are several Hearths and Chimneys at proper Distances from each other, where they dress their Victuals; and after Supper their Bed is quickly made, consisting only of a Mat or Carpet spread upon the Bank above-mention'd, a Saddle supplying the Place of a Pillow, and their Cloaths serving them for a Covering. These Inns are design'd for all Travellers, of whatever Quality, Country, or Religion; and many of them are provided with Straw, Barley, Bread, and Rice, at the Expence of the Founder.

WE have made no separate Article of the Antiquities of *Persia*, as not having much to say upon that Head; but we shall conclude this with a brief Account of the famous Ruins of *Persepolis*, which it might be thought a great Omission to pass over in Silence. This City was the Residence of the ancient Kings of *Persia*, and was scarce inferior to any City in the World in Splendor and Magnificence. The Wealth of it is evident by the great Plunder *Alexander's* Soldiers made when he had taken it, and given it up to Destruction, in Revenge for the many Cities of *Greece* which the *Persians* had destroy'd, and by the Treasure he himself seized upon, which amounted to one hundred and twenty thousand Talents of Gold and Silver. The Royal Palace was a Structure of

such Beauty and Magnificence, that perhaps it was never exceeded by any. It stood on a rocky Hill, and took up fifty Acres of Ground; being surrounded, according to *Diodorus Siculus*, with a triple Wall, the first of which was sixteen Cubits high, the second double that Height, and the innermost sixty Cubits, all built of Marble. The Palace itself was of a square Form, and on each Side had brazen Gates. The Halls and Apartments of it were exceedingly spacious and lofty, the Walls of them adorn'd with noble Sculptures, some of which still remain to testify its ancient Splendor; and the Cedar Roofs shone with Gold, Silver, Ivory, and other precious Materials. The King's Throne was of pure Gold, embellish'd with Pearls and precious Stones; and the Furniture of the Chambers was rich beyond Description, the Bedsteads being of solid Gold beset with Gems, and every thing else proportionably sumptuous. Its Glory however did but procure its Destruction, for at the great Feast which *Alexander* held in it, he was persuaded by *Tbais*, the *Atbenian* Courtisan, that it would be a noble Exploit to burn so fine a Palace; which, being heated with Wine, he readily agreed to, and himself led the Way with a Firebrand. Thus this superb Palace, together with the City, which for several Ages had been the Seat of the *Persian* Monarchs, was soon reduced to a Heap of Ruins, which are still to be seen about thirty Miles to the North of *Schiras*, and carry evident Tokens of its ancient Magni-

Magnificence. The lofty Columns yet standing declare the Height of the fallen Roofs; and the Stairs, which are thirty Feet wide, shew that the Apartments they led to were much superior to any thing in our modern Palaces. Even *Rome* itself, according to some, has nothing comparable to these venerable Remains of Antiquity; but as we have given a full Description of the Ruins of *Palmyra* and *Balbeck*, which we apprehend are as stately as those of *Persepolis*, we think it needless to enlarge here on a Subject in itself insipid, at least to the Generality of Readers.

ARTS, MANUFACTURES, &c.

SP E A K I N G of the mechanic Arts of the *Persians*, Sir *John Chardin* observes in general, that the Eastern People are naturally soft and lazy; though he allows they are Men of good Parts, having a penetrating Wit, are patient, and would make very skilful Workmen if they were liberally paid. He adds, that they are not desirous of new Inventions and Discoveries, being contented to enjoy the Necessaries and Conveniencies of Life, and chusing rather to buy Goods from Strangers, than to learn the Art of making them. This Indolence he seems to attribute to the Heat of the Climate, which enervates the Mind as well as the Body, and damps that Quickness of Fancy which is necessary to invent or improve an In-

O O 2 vention.

vention. This Character may be true in some measure, but is far from being applicable to all the Eastern Nations, especially the *Cbinese*, or even to the *Persians* themselves, without much Exception, as will appear from an Account of some of their Arts and Manufactures.

THE Joiners in *Persia* are very ingenious in composing all Sorts of inlaid and Mosaic Work, and make noble Cielings of that Kind, which are all fitted on the Ground, and then raised up to the Top of the Building. The *Persians* are also well skill'd in the Art of Turning, though they have no Lathe for that Purpose, as we have, but only a Trendle, to which they fasten the Piece of Wood, or whatever they intend to turn. The Piece is turn'd about by a Thong that goes twice round the Trendle, which a Boy holds with both his Hands, pulling first one End and then the other; but if the Piece be small, the Workman needs no Assistance, for with one Hand he turns the Axis with a Bow, and with the other he holds the Wood. They turn Metals as well as Wood, but in that Business they are far inferior to our *European* Workmen; and they are quite Strangers to the Method of turning an Oval. They lay on Lacker very neatly, the violent Motion of the Turning-Instrument melting it without the Help of Fire; and by rubbing it with a coarse Cloth and a little Oil, they give their Work a wonderful Lustre, which never fades, nor is the Lacker subject to Scaling.

THE

THE *Persian* Artists excel in all Sorts of Embroidery, especially those of Gold and Silver, either on Cloth, Silk, or Leather. In this Sort of Work they exceed even the *Turks*, whose Stitching and Embroidery we so much admire. Their Leather Seams, and those of Horse-Trappings among the rest, are so neat and smooth, that one would take them for Embroidery. The Gold and Silver Thread they use is so well twisted, that it looks like Wire when it is wrought, the Silk not appearing in the least.

ANOTHER Trade in which the *Persians* excel is that of Leather-dressing, a great deal of what we call *Turkey Leather* being made in *Persia*; and they are particularly skill'd in the Preparation of Shagreen*, which they send to the *Indies*, to *Turky*, and other neighbouring Countries. This is a Kind of Leather cover'd with little roundish Grains, very close and hard; but being steep'd in Water it becomes soft and pliable; whence it is of great Use in covering Cases, Books, &c. To prepare it, when the Skin of

* Authors are not agreed what the Animal is, of whose Skin Shagreen is prepared. It is commonly thought to be the *Onager*, or wild Ass, and that the hardest Part of the Skin only is used. *Borel* says it is a Sea-Calf, others a kind of Fish which the *Turks* call *Shagrain*, whose Skin is

cover'd with Grains, and those so hard that it will rasp and polish Wood. There is also a Shagreen made of the Skin of the *Squatina*, which is what we call the *Monk* or *Angel-Fish*; and it is sometimes counterfeited by *Marroquin* made to resemble it.

the Animal is just dead off, it is stretched out, and cover'd over with Mustard-Seed, or a Seed much like it, which being bruised upon the Skin, it is exposed for some Days to the Weather, and then tann'd.

THE *Persians* make a Sort of Earthen Ware, which is one of their most curious Manufactures. Its Grain is so fine and transparent, that it cannot easily be distinguish'd from *China* Ware; nay, it is said the *Dutch* mix the *Persian* Ware with that of *China*, and import it into *Holland*. This Ware they have a Method of enamelling very beautifully, with a Composition made of Glass and little Pebbles pounded small, and the Addition of other metallic or mineral Matters to give it the Colour required. The skilful Workmen ascribe to the Water the Gloss of the Colour, and say there are some Waters that dissolve the Colours and make them spread, whereas there are others that contract and fix them. The Pieces which the *Persians* make best are the enamell'd Tiles, painted and cut out in Imitation of *Mosaic* Work; and indeed nothing of that Kind can be more bright and lively, or more finely and regularly drawn. This *Persian* Ware will bear the Fire, so that one may boil Water in it without breaking; and it is hard enough to make Mortars for grinding Colours or other Materials.

THE Armourers in *Persia* make very good Weapons, especially Bows and Sabres. Their Bows are made of Wood and Horn laid over
one

one another, and cover'd with Sinews, and over that with the Bark of a Tree very sleek and smooth; after which they are painted and rubb'd with an excellent Varnish. The Bow-Strings are of twisted Silk, the Thickness of a large Quill; and the Quivers are made of Leather embroider'd with Gold and Silk. Sir *John Chardin* tells us they forge the Blades of their Scimitars or Sabres cold, and before they dip them, they rub them with Tallow, Oil, or Butter, to hinder them from breaking. After this they temper them with Vinegar and Copperas; and the *Indian* Steel, which they commonly use, being fuller of Veins than ours, is fitter for damaskeening, in which Art the *Persians* likewise excel. *Tavernier* says, they are exquisitely skill'd in damaskeening with Vitriol, and that they have their Steel from *Galconda*, which is the only Sort proper for that Purpose. When it is put in the Fire to temper, they give it a moderate Redness, like that of a Cherry; and instead of quenching it in Water, they only wrap it in a wet Linen-Cloth; for if they gave it the same Degree of Heat that we do to ours, it would become as brittle as Glass.

THERE are several other Manufactures of Iron and Steel, wherein the *Persians* succeed very well, and particularly Saws, which they make as bright as a Looking-Glass. They likewise make good Razors, and shave with great Dexterity; and their Scissars are also good, though shaped somewhat different from ours, being hollow

low on the Inside, like Gutters, which they say makes the Edges of the two Blades join closer and cut the better. Their Mirrours or Looking-Glasses (to speak a little improperly) are generally of Steel, and convex, though some few are concave. As the Air is dry in *Persia*, these Mirrours never rust or lose their Brightness. They have indeed Looking-Glasses like ours, but not near so many as those of Metal, which they prefer on two Accounts; first, because they are more lasting, as being not liable to be broke by falling; and secondly, because Glasses become useless when they are once unsilver'd, and the Method of silvering Glasses is not known in *Persia* and other Eastern Countries. Add to this, that Quicksilver sooner comes off the Back of Looking-Glasses there than in *Europe*, by reason of the Dryness of the Air.

THE Art of Dying seems to be better understood in *Persia* than in *Europe*, their Colours being more bright and lasting; but this is not so much owing to the superior Skill of the Workmen, as to the Air and Climate of the Country, which being dry and clear causes the Colours to appear more lively. It may likewise be ascribed to the Strength and Goodness of their Dying Ingredients, many of which being of their own Growth, they have them in their greatest Perfection.

THE *Persians* have good Manufactures in Cotton, Goats and Camels Hair, Yarn, and specially in Silk, which is the Staple Commodity

dity of *Persia*. The Natives have particularly addicted themselves to the working of it, and it is what they are best skill'd in, and in which they have the most considerable Manufactures. Besides Taffaties, Tabbies, Satins, and Silks mix'd with Cotton, or with Camels or Goat's Hair, which are made all over *Persia*, they have at least a hundred Sorts of single Brocade: But the double Brocade, which has both Sides alike, is the richest and most valuable of any that is made in the East; and the same may be said of their Gold Velvet. All the *Persian* Stuffs are very durable, and where there is Gold or Silver in the Work, it keeps its Colour and Lustre to the last. The best Looms and Workmen for these Stuffs are at *Yezd*, *Casban*, and *Ispahan*; those for Carpets are chiefly in the Province of *Kerman*, which are the best of any in the World, and are what we commonly call *Turky* Carpets, as well as those manufactured in the *Turkish* Dominions. Most of the Goat's-Hair Stuffs are made in *Hyrkania*; and the *Persians* likewise make and stain some Calicoes, but they are not to be compared with those of the *Indies*.

As to the *Persian* Architecture, there is no Country in the World where the Workmen are better skill'd in making Domes and Arches, the Coverings of their Houses being generally vaulted. These Vaults indeed are low, because they commonly make Terrasses on the Top, filling the Spaces between the Cupola's, and making them level, that they may take the Air or lie
upon

upon the Terrasfs when the Season permits. The Walls of their Houses are generally of Brick, the Inside of which they over-cast with Mortar, then put on a Layer of fine Plaster, and afterwards whiten it, or do it over with beaten Talc blended with Lime, which gives a fine Gloss to the Walls and Arches, making them appear as if they were silver'd. Painting is their most usual Ornament; and if they have any Carving, it is seldom any thing but Flowers and Foliage. The Windows of the Houses belonging to the common People are only Lattices, but those of Noblemen have Sashes, the Glass whereof is thick and waved, to hinder People's looking in, and the Squares are of different Colours, some red, some green, some yellow. The *Persians* have generally a Contrivance on the Tops of their Houses to let in the fresh Air; and even in the meanest Houses there is a Bason of Water, built of Brick, and overlaid with a Cement which in Time becomes as hard as Marble. This Cement is made with very fine Ashes, mix'd with half the Quantity of quick Lime, and with a Kind of Down growing on the Top of certain Reeds; instead of which they sometimes use very fine Flocks or Kid's-Hair. This Composition is proof against Water, and even against Fire, but Frost cracks it, and makes it peel off; to prevent which, they drain the Basons in the Winter, fill them with Leaves, and cover them with Mats or Carpets.—In the Houses of the Rich these Basons are built of a
hard

hard Free-stone, edged round with white Marble.

To conclude, the *Persians* build mostly with Brick, not because Stone is scarce, says Sir *John Chardin*, but because it is not so proper to build with in hot Countries. They have no great Plenty of Timber indeed, and therefore they use but little; so that Bricks, either burnt or harden'd in the Sun, are the chief of their Materials for Building. Their Houses in general are far from affording so noble a Prospect as ours do, but within they are convenient enough, and look very airy. They seldom endeavour to make them appear magnificent or splendid by any outward Ornaments, the Fashion of the Country being rather to conceal them from the Eyes of Passengers; and therefore great Men's Houses are always inclosed within high Walls, which is the usual Token whereby to know the Palaces in *Persia*. In general the Houses consist only of a Ground-Floor, or perhaps that and one upper Story, in which Case the Cielings of the Ground-Rooms are so much the lower; and this is the usual Way of building, not only in *Persia*, but in all the Eastern Countries.

The End of the SECOND VOLUME.